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General Report on the Santa
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GENERAL REPORT

ON THE

SANTA EULALIA MINING DISTRICT

AND THE

OLD SPANISH MINES

OF THE

FRESNO RANCH

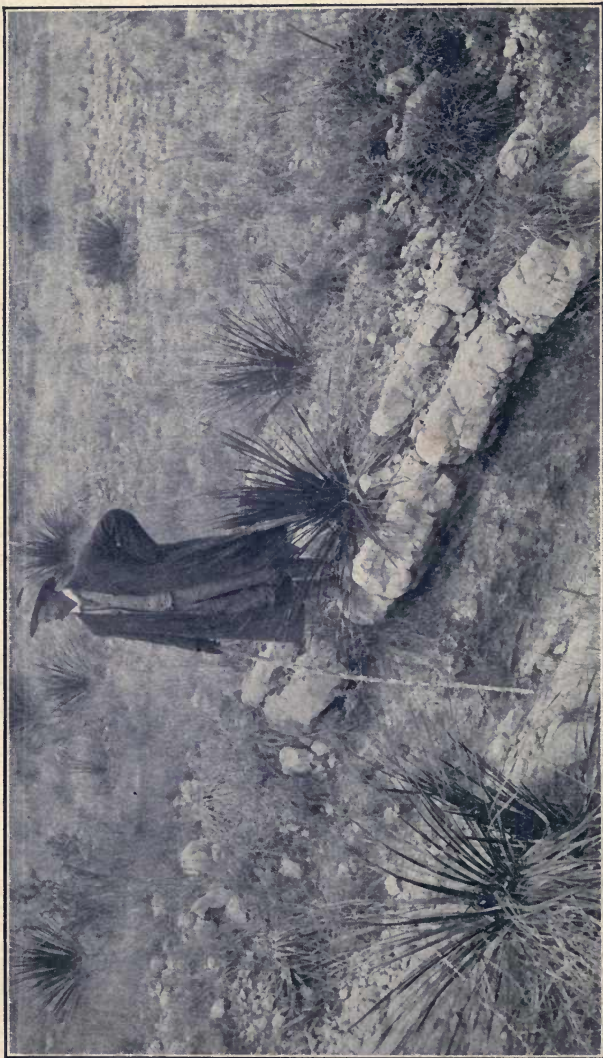
—BY—

Wm. L ADAMS, E. M.

1909

IMPRESA EL NORTE, S. A.

CHIHUAHUA, MEXICO



HARRIS FISSURE—Nueva Santa Eulalia.

The Santa Eulalia Mining District

About fifteen miles southeast of Chihuahua City, in the State of Chihuahua, Republic of Mexico, the Santa Eulalia Mountains rise in a gentle tuff-capped fold to a height of about 1500 feet above the plains. This mountain is a massive limestone, the range being about five miles wide and eight miles long; everywhere it is composed of igneous rocks, (rhyolite or porphyry) except within the mineral district proper, which ranges from three-quarters to one and one-half mile wide, and probably extends from the Puerto Dolores on the north to the valley lands east and south of the Chiribel mine and Chihuahua Vieja, and more recent denouncements called Nueva Santa Eulalia lying directly south of the Potosi Mine and Bonanza Zone. The highest peaks are about six thousand feet above sea level and generally capped with volcanic overflow of cantera (volcanic ash) and breccia, occasionally plowed with Rhyolite Dikes filling the crevices or fissures. The Pueblo of Santa Eulalia is connected with Chihuahua and the Mexican Central Ry. and the K. C., M. & O. R. R. by two branch railway lines, called the F. C. Mineral of Chihuahua and the Chihuahua Mining Company's railroad for transportation of ore and supplies. There are also two aerial tramway lines operated by the San Toy and American S. & R. Co's.

Water for steam hoists and household purposes is pumped by the Chihuahua Mining Company from the Hacienda Robinson, near Tabalopa, to the town of Santo Domingo, where the shafts of the Potosi, Santo Domingo, Buena Tierra, Santa Eulalia Mining Co., and A. S. & R. Co., are clustered in a deep ravine.

The Great "Real" of Santa Eulalia

There are several equally reliable legends for the discovery of this great silver zone, handed down to us by such eminent historians as Baron Von Humboldt, Chas. A. Dahlgren, and Gen. Lew Wallace.

Quoting from the latter, he says:—"The discovery of the silver was romantic; as the story runs, in the year 1700, or thereabouts, three fugitives from justice, hunted out of the Haciendas around Chihuahua, (itself then nothing better than a lively Catholic Mission) took refuge in the fastness of what is known as Santa Eulalia. Shifting from mountain to mountain, they took up quarters finally in a tremendous ravine (now called the Cañon de Parcionera,) in which there was a natural tanque of water, and where they could remain with prudent conduct perfectly safe. One day

the Señor Padre in the City, through a friendly Indian received a message from the outlaws to the effect that if he would absolve them and obtain their pardon from the official authorities they would put him in the way of getting enough silver to build a Cathedral in New Spain. The offer was accepted, they were absolved, and the mines were opened; their fame went rapidly through the country, miners flocked from all parts of Chihuahua, traders followed of course. The mission became a city of 70,000 inhabitants, a growth and prosperity attributed to Santa Eulalia alone."

Another story handed down from the antiguas from one generation to another is that the eastern part of the camp was discovered first by Spanish prospectors, who came over from the placers of Santo Domingo on the Conchos river, and who first observed the prominent peak called Picacho Oriental, its iron-stained capping of Rhyolite and Tuffa glistening in the sun indicated to the observant Spanish miners that it was "Muy buena tierra para mineral," and they made their first camp at Chihuahua Vieja, where a prominent spring induced them to build the first Pueblo of the Santa Eulalia mountain range, the ruins of which are still to be seen. The old Chiribel mine (now called the Septentrional, recently bought by Bellis & Co.,) was the first mine worked, followed by the Sorequero, now called the "Josefina" Silver & Gold Limited, which, together with the surface burrowings on and around Picacho Oriental, principally embraced in the San Antonio, Dolores, Ibera No. 2, Nueva Santa Eulalia and Pagina, and that after establishing the Pueblo of Chihuahua Vieja, the greater mines were discovered at the north end of the district, including the Mina Vieja, Parcionera (then called the Zacatecas,) Santa Rita, Negrito, Carmen, San José, Dolores, Santo Domingo, San Juan, Zubiate, Galdeano and Bustillos.

What has been the yield of the Santa Eulalia Mines?

On this subject nearly every historian and geologist has gone into approximate figures. They all agree that it is impossible to determine the amount, except approximately. While the archives of the mint containing volumes of authentic information, aggregating hundreds of millions of pesos under Spanish rule, probably only one-half of the silver bullion reached the mints, evidently the balance was exported in many convenient and evidently unlawful ways. Nearly everyone who has read the history of this marvelous mineral zone is familiar with the facts connected with the erection of the Chihuahua Cathedral building which was paid for by contribution at the rate of a real (12 1-2c) for every marc, or eight dollars of silver produced from the mines, or 0.015 per cent of the yield. John Russell Bartells (who wrote up Santa Eulalia in 1851) says:—"The Cathedral of Chihuahua was built at a cost of \$1,800,000 (One million eight hundred thousand pesos, and the church of Santa Eulalia at a cost of one hundred and fifty thousand pesos,) or a total of one million nine hundred

and fifty thousand pesos (\$1,950,000); that the Cathedral and church were built from 1736 to 1750, or only during fourteen years of production, so that it took, according to these figures, one hundred and thirty millions @ 0.015 per cent, for the tax to amount to one million nine hundred and fifty thousand pesos, so, when we go back to reliable statistics, our calculations run into such fabulous results that the writer is loath to make any estimates.

It is only safe to assume that for two hundred years, while the Spaniards were packing out the easy mined and richer ores from the grass roots of not more than five per cent of the now known Bonanza zone, they produced more silver than was coming from any other part of the world. They worked the deposits in a most crude manner, not a rope or windlass were to be seen. All the ores were carried through the net work of honeycombed openings on the backs of Coolies, up "chicken" ladders, or on burros, over corkscrew trails, to the surface. Nothing but the richer lead-silver ores were extracted; no dumps of waste rock appeared on the surface, everything was left in the mines, except ores that would pay under these obsolete and expensive methods; smelted in old vassos, and the product not accounted for to the tax collector) had to be transported to the sea coast over a dry, desolate desert, swarming with hostile Indians for hundreds of miles, to a shipping port. If a pocket "pinched" it was abandoned, the mountain was pregnant with big deposits, they had no inclination or time to do prospecting work, and only "gophered" out what was the best and could be obtained the easiest, always in bonanza ground. They swarmed through the vast caves and honeycombed mountains for hundreds of years, like ants, produced untold millions of pesos, and only (except in one instance, viz: the Carmen mine,) did they get down more than 300 feet. In the Carmen, with its intricate cave system, fissures, dikes and mantillas, they reached a depth of 600 feet and then only stopped on account of the air being too suffocating and foul even for a peon to endure it. As late as 1851, John Russells Bartells says, "the mineral wealth is not surpassed, if equalled in variety and extent, by any state in the world." When Baron Von Humboldt visited Mexico in the beginning of the 19th century, he calculated the great silver deposits of Santa Eulalia employed from 3000 to 5000 miners, and reckoned the silver extracted since the Spanish first began to work to be worth one hundred and fifty millions in gold value.

These figures have been quite eclipsed by such eminent geologists as Prof. Robt. T. Hill, who estimates the total product and value at many millions more. That such huge quantities should have been mined is due to the spongy, friable nature of the ore, which permits it to be mined and reduced by comparatively primitive methods, and in places (up to the present day,) masses of bonanza metal have been, and are being, won, ranging from one thousand to two thousand ozs. per ton, in car load lots, according to returns of the American Smelting & Refining Co., of ore coming from the Dolores mine to the south of the old Mina Vieja.

What the production of Santa Eulalia is at the present time is almost as hard to figure as it was during the administration of the

Dons; as all the large companies like the operations of the American Smelting & Refining Co., the Chihuahua Mining Co., the Santa Eulalia Exploration Co., the Reina de Plata, and those mines operated by Schwab & Co., are closed books to the outside world, but it is safe to say that these companies are now shipping one and a half million pesos in lead-silver per month, which should be doubled as soon as the San Toy commences active operations. The American Smelting & Refining Co. have blown in their new nine hundred ton smelting plant and it is also presumed that Schwab & Co. will erect new smelting plants in order to treat the low grade ore (of which there are millions of tons opened up and standing in their mines) to a profitable manipulation. With aerial tramway, these ores can be transported from the dumps of the mines to the smelters, for from ten cents to twelve cents gold, per ton, against from three dollars to five dollars Mex. Cy., under present system of burro packing and railway haulage.

GEOLOGY. In this brief report on these great mines, I will occasionally sprinkle in a few of the geological conditions to fit the situation, but for those who desire to read heavy manuscripts on this interesting subject, I will refer them to Prof. Robt. T. Hill's report and also that of Prof. Philip Argall. The latter, read at the meeting of the American Institute of Mining Engineers on Aug. 1st, 1905, gives a plain, comprehensive description of the cave system, which will prove very interesting to geological students and mining men generally. In my booklet published in May, 1905, both Prof's Hill's and Argall's reports on Santa Eulalia are copied. I have a few hundred copies of this pamphlet left which I sell for one peso (\$1.00) or 50cts. American money. Address 119 Calle Aldama, Chihuahua, Mexico.

Brief Notes Concerning Past History, Present Conditions and Future Prospects of the Mines of Santa Eulalia.

In my general report compiled in May, 1905, I gave a general description of the eastern part of the field and only touched briefly on the great bonanza zone, which constitutes the northern end, and in order not to repeat, I will here go into more exhaustive details on the "Bonanza zone Proper" and new discoveries in what is called Nueva Santa Eulalia. This great mineral belt, now containing about sixty-four square miles, extends from the Cañon de Parcionera on the north and valley foothills to the west, to the foothills east of the famous San Antonio and Dolores, including the old Chiribel, Sorequero and Nueva Santa Eulalia, Wild Horse and Garibaldi to the south, which so far as explored constitutes the true mineral zone, varying from three to six miles wide, and is fully twelve miles long. Although this embraces all of the improved mines, there are some fifteen square miles more of denouncements to the northwest

and southeast, on which there are many dikes and other surface indications, which undoubtedly will prove up additional similar mines when exploited.

The Great Rhyolite or Quartz Porphyry Dikes of Santa Eulalia

It is a historical fact that in many of the world's greatest mineral fields the best mines are overlooked for years, and thousands of practical miners and geologists pass by them, simply because they are right under their noses: To illustrate this we may mention the "Little Johnny" at Leadville, Col.

This famous camp was discovered in 1878 and the great silver-lead carbonate deposits were worked 14 years before the "Little Johnny" was accidentally found in a piece of vacant ground right in the heart of the district. It was a quartz porphyry dike with mule trails, wagon roads, and foot paths crossing it, where probably a million people had traveled and no one had any idea of its carrying values. Well, we all know its history since, of gold production in a silver-lead camp.

The Great Broken Hill, of New South Wales, Australia, was overlooked for five years, while the practical miners and prospectors were digging out rich ore at Silverton, only a few miles away. Charley Rasp, (who was a boundry rider for the McCullac sheep station, earning fifteen shillings per week and his "tucker,") (Grub) first built a sheep corral that afterwards was put through the smelters giving returns of fifty ounces silver and thirty per cent lead per ton.

He put it in 14 shares with W. McCullac, Will Jameson, (a young surveyor who was temporarily on a hunting trip at the station) and 11 other employees as his mates; one of them lost his 14th at a game of euchre, another 14th was given to Mr. Sully, a storekeeper, for £50—equal to \$250.00, for a "grub stake." Willie Wilson paid £1000 for a 14th, Willie McGregor paid £2000 for a 14th, Mr. Patterson came in for a 14th, for £5000. They then put it in 160,000 shares which went to £400 per share, then watered it to the tune of 960,000 shares, which went to £13 per share, and they floated off five miles on its strike in quarter mile blocks of forty acres each, whose shares in blocks one to twenty went to a valuation of 35,900,000 pounds sterling.

For Blocks	1 to 4,	100,000 shares	£ 100,000	B. H. South Extended
	5 to 8	500,000	„ 10,000,000	B. H. South
	9 to 10	250,000	„ 5,000,000	B. H. Central
	11 to 13	960,000	„ 12,400,000	B. H. Proprietary
	10	100,000	„ 2,000,000	B. H. Block 10
	14	100,000	„ 1,400,000	B. H. Block 14
	15—16—17	250,000	„ 2,250,000	British Blocks
	Junction	100,000	„ 800,000	B. H. Junction
	18—19	100,000	„ 700,000	B. H. North
	20	250,000	„ 1,250,000	B. H. Junction North
				£ 35,900,000 Pounds Sterling

Add non-producing locations for
3 miles each way, which sold
on stock bond for over

£ 5,000,000

Value of Broken Hill Mines £ 40,900,000 Pounds Sterling as per
share list on the London and Australian Stock Exchange during 1887 to

1888; B. H. South sold on the Stock Exchange at a valuation of ten million Pounds Sterling and never paid a dividend up to 1905, but is now one of its greatest producers.

The Bonanzas of the Consolidated California & Virginia Mines of the Comstock were only found in 1874, while the Comstock was discovered in 1862.

The best mine at Charter's Towers, Queensland, Australia, was found seven years after millions in dividends had been won all around this vacant piece of ground, and I could go on for pages describing similar overlooked bonanzas, and now history will record many other geological oversights at Santa Eulalia, and one within 20 minutes walk of the Cathedral of this antique village. In order to aid in the description of this probable new Eldorado, my associate, Mr. T. van Houwelingen, 119 Calle Aldama, has prepared a colored map, showing all the incorporated Companies in the Mining Camp of Santa Eulalia, each company's holdings being distinguished in a different color, the price being only 5 pesos.

The true mineral belt starts properly on the north at the Cañon de Parcionera and continues in a Southerly direction for a distance of about six miles, with an eastern leg to the valley in the vicinity of the San Antonio, Dolores and Septentrional mines.

Starting on the eastern part of the belt, we first observe the dike or fissure called "Las Estrellas" which has a strike of nearly north and south from "La Peruana" through Las Estrellas and Maria. Next is Jacobs dike. Starting on Ibero No. 2 and running nearly parallel with the Estrella fissure through the Maria, but close to boundary line of Continente No. 4, the DOLORES FISSURE is next in order to the west; starting on the La Peruana cutting through the Ibero No. 2, San Antonio, Dolores and thence through the San Antonio again, the Astreas and La Isla. The great San Antonio Dike runs almost parallel to the Dolores fissure and can be followed from the "Wild Horse" claims for twenty-three hundred meters, almost due north, until it also reaches the valley on the La Isla.

PROMONTORIO DIKE, also starts on the Wild Horse and with a course a little east of north ends, (or is buried) in the Promontorio y Anexas, showing up boldly for about 1600 meters. To the north is one of the truest, largest and most prominent dikes of the field, called Adams' Dike, which starts in the valley lands of the California, and as far as proved, it butts into the great cañon of the Parcionera on the Mina Vieja, showing like a great river bed crossing box cañons through cretaceous limestone sediments, volcanic ash, and porphyry hills, without a break for over 5000 meters, or 5 kilometers.

DOCKERY'S DIKE, first appears near west boundary line of the Garibaldi, passes through Sorpresa, Bellavista, and junctions with Adam's Dike on Independencia.

BURNS DIKE, Traverses the Enriqueta, La Sirena, and into the Dinamita.

CHICO DIKE, commences on Las Leonidas, passes through San Antonio Chico into El Potosi.

HOLBERT'S FISSURE, is a short vein appearing on the Cocineros and Anexas de Inglaterra.

COCINEROS DIKE, first comes to the surface on La Novedad, whence it takes a strike northeast for about 1500 meters into El Juarez. I think this dike will eventually prove to junction with Adam's Dike on the Vergara.

MINA VIEJA DIKE, starting on the Zacatecas, has a course due east into the Santander, where a fault shifts it at right angles into Mina Vieja, when it assumes a northeasterly course into Las Animas Anexas, where it again strikes due east into Fortuna.

SANTA RITA DIKE, first outcrops on the Centenario with a northwest strike and disappears near the great Cañon de Parcionera.

PRIETO DIKE, appears first on the Cecilia, from whence it strikes northeast to the border of the "La Central."

LA CENTRAL DIKE, one of the largest and longest and truest lodes of Santa Eulalia, shows first on La Central Mining property, taking a course southwest until it is buried in volcanic breccia near south end of Adams Hills claims. (See later notes regarding the Central Dike and data concerning Fresno Ranch Mines annexed to this report.)

SANTO DOMINGO DIKE, appears on La Juarez, and with a strike of southwest apparently ends in the Roosevelt.

ALDAMA DIKE, is seen first on the Baltimore, and with a strike east of north reaches the Mina Vieja.

BUENA TIERRA DIKE, commencing at the main shaft of the Buena Tierra mine, runs east of north to the Cañon de Parcionera.

JUAREZ DIKE, starting on Buena Tierra, reaches boundary line of Cristo and probably connects with Adams Dike on La Central.

ROOSEVELT DIKE shows mammoth outcroppings on the Roosevelt, Lucera, Lucera Anexas, and apparently cuts through the great mountains to the northwest, on which are denounced the Roosevelt Anexas, and Klondike.

ROOSEVELT FISSURE, junctions with the dike of the same name on the Roosevelt claims.

LA CENTRAL DIKE, cuts through the entire length of the Adams Hills, Mascota, Lucera, Lucera Anexas, Roosevelt and Corina and has

since been picked up in the valley and traced to Mex. Cent. R. R. and again crops boldly on western side of valley in foot hills of the Chihuahua City range of mountains cutting through Fresno Ranch Mines six miles west of valley. (See annexed reports on Fresno Mining syndicate.)

VANS DIKE, parallels the Central dike until it is buried in volcanic overflow on the Corina.

JONES DIKE, is to the east of Van's dike running nearly parallel.

There is no place in Santa Eulalia where such a net work of dikes and fissures are woven together in mammoth outcroppings, as is seen on the Mascota, Lucera, and Lucera Anexas, except as found in new discoveries of Nueva Santa Eulalia. A great deep basin comes up from the valley called the Broken Hill Arroyo, which butts up against Roosevelt dike, affording splendid backs for tunnel sites on these properties.

A TUNNEL, started on the Roosevelt, having a course due east through the Roosevelt Anexas and Klondike, would obtain over a thousand feet of backs in driving 600 meters, and a second site for a tunnel about 500 meters to southwest, near southwest corner of Roosevelt, will tap the two great dikes to the west at from 200 to 400 feet deep in a distance of 500 feet, more or less.

A splendid site for a prospecting shaft can be selected between the Central and Santo Domingo dikes, about 300 meters west of the Klondike tunnel site, and about 800 meters north. Northeast of the proposed prospecting shaft is a fine site for the main working shaft, being in the northeast corner of the Lucera. This place is near the center of the properties, being over 1,000 feet above the terminus of the San Toy aerial tramway, and affords an ideal site for an aerial tram line, being only about two kilometers from the ore bins of the R. R. connection with the San Toy Co's aerial tramway. The ground embraced in these properties consists of the Lucera, containing 4 pertenencias, Holland, 15 pertenencias, Overlooked, 18 pertenencias, Mascota, 16 pertenencias, Lucera Anexas, 22 pertenencias, Demasias, 6 pertenencias, Adam's Hills, 133 pertenencias, or a total of 214 pertenencias.

IN A SURVEY I RECENTLY MADE FOR Mr. MANUEL GAME-ROS, accompanied by a general description of a large tract of mineral land he is holding to the north of the Cañon de Parcionera, called "Las Plomosas," embracing an area of about 2,400 pertenencias, I advised him to cut his holdings down to 600 hectaras which presented many inviting features, worthy of spending money on bona fide development work. He has since titled 2400 pertenencias of this ground. In this territory there has been already titled eight pertenencias called the "Jesus" and nine pertenencias known as the "San José del Retiro," in both of which there are well defined fissures or mantillas carrying large bodies of low-

grade silver ores, and a large-ore bearing fissure cuts through "Las Plomosas" for a distance of 500 meters, coming in from the Esmeralda mine to the south, having a strike of nearly north and south.

LAS ANIMAS MINE: This is an old time producer under Spanish and Mexican workings. It is equipped with a 12 H. P. Fairbanks Morse gasoline engine hoist. The main shaft is down 700 feet, exposing large bodies of payable ore. The surface is riddled with "pot holes" and shallow burrowings, a prominent dike and a heavy mineralized fissure comes from the "Fortuna" claims to the east, which crops boldly and cuts through into the Esmeralda and Mina Vieja dike. The price asked by Don Jesus Aguirre Nevares (who owns the Las Animas,) is (I am informed) seven hundred thousand dollars gold coin.

THE SAN GREGORIO MINE: This property, owned by Mr. White, formerly of Miñaca, contains only four pertenencias, but he asks one hundred thousand pesos for it. It is situated to the southwest of the Las Animas. No work has been done on the property but it is claimed that some of the ore bodies from Las Animas are dipping into it and consequently the owner puts a high price on a small parcel of supposed bonanza ground.

LA ESMERALDA AND ANEXAS: Containing twelve pertenencias, situated east of the Mina Vieja and southwest of the Las Animas, being nearly surrounded by holdings of Seijas & Prieto; the latter now under lease to the A. S. & R. Co. La Esmeralda proper, containing eight pertenencias, is one of the very oldest producers under the Spaniards who mined out rich pockets down to 200 feet, or until the great "creep" in the Mina Vieja, which buried several hundred miners and also caved the Esmeralda badly, suspended operation. Many miners were also entombed in this old mine and it was abandoned for many years, as the Spaniards and Mexicans are superstitious about ghosts and would not work around the bones of the old miners, which are still to be seen mixed up in the general wreck. Sr. Manuel Gameros tried to reopen this mine a few years ago, erecting a 12 H. P. gasoline hoist. He shipped considerable ore of a satisfactory grade, but it was a dangerous place to work in, since which Messrs. Anderson, Jacobs and Skeels have taken a lease and bond on the property running over two years, with privilege of buying for \$300,000.00 Mexican currency. The great Mina Vieja dike and lode passes through the Esmeralda.

This mine should be reopened by a new shaft outside of the "creep" disturbances, and probably the shaft put down 1000 ft., when all the ore to surface can be mined by careful timbering in "creepy" ground. Under competent management, I believe any man or company who have funds to carry out the development on these lines, will add another bonanza equal to the Mina Vieja, to the list of Santa Eulalia's unequalled silver-lead producers.

THE FLORENCIA, containing fifteen pertenencias, is situated southeasterly of the Esmeralda and Las Animas. It has several well defined dikes cutting through its surface. A shaft has just been started near the northwest corner to tap the rich Dolores manta, known to have crossed the boundary line at 600 feet. This mine, owned by Governor Creel, has recently been bonded to Burn and Morambert for a big figure. It promises to be a magnificent mine when lower levels are reached, and more especially when developed near the Central Dike which cuts through the eastern corner of this property.

Passing over the leased holdings of the A. S. & R. Co., which adjoins the Esmeralda and Florencia to the northwest part of the mineral zone, we find three old Spanish mines, now known as the *Zacatecas, Guadalupe and Corpus*, on which there is much evidence of antique workings. The surface is marked with rainbow colorings of mineralization, numerous fissures plow through the surface, coming in from the general mineral zone of the east, and passing into these claims. They are bordered on the east and south by the Santa Rita, Luisa, Negrito, Incognita and in close proximity to the Carmen, Reina de Plata, and Nueva Chihuahua. There are many old holes here, and on the adjoining properties mentioned above, which lead to galleries below, the extent and size of which it is impossible to determine at the present day.

According to the traditions of the old families of Chihuahua, this was all bonanza ground during the administration of the Spaniards, but has remained idle for many years with the exception of the pilfering of the gambucinos, who have from time to time secretly gouged out hundreds of tons of the richer ores. This part of the country is very similar to Parcionera and Santa Rita, where thousands of tons of low grade ore now developed await cheaper transportation and treatment. The price now asked for the Zacatecas, Guadalupe and Corpus is three hundred thousand dollars (\$300,000.0) Mexican currency, and is in my hands for terms.

THE MORELOS, belonging to Sr. Manuel Gameros, adjoins the old producers, Mina Vieja, and Zacatecas, or Parcionera.

THE DENOUNCEMENTS OF MESSRS. ARELLANO & GARCIA: These Mexican cabelleros are holding two hundred and fifty-nine and one half pertenencias over the bonanza zone, from the Mapulas, adjoining the Parcionera, to the extreme eastern end of the Santa Eulalia denouncements, as scheduled herewith:

Nueva Chihuahua sold to London Co.	44 pertenencias
Carmen group also sold to London Co. containing	
Incognito of	2 pertenencias
Negritos ,,	3 ,,
Carmen ,,	1 ,,

Seijas & Prieto of	9	„	
Mapula	2	„	
Santa Teresa	3	„	20
La Elvira			12
La Fortuna			4
El Jesús			8
Las Mapulas			7
Las Orientales			9
El Continente group No. 1 and La Gloria			21 $\frac{1}{2}$
El Continente No. 2			12
La Isla			78
La Islita			6
El Colon			12
El Continente No. 4			16
La Astrea			10
TOTAL			259 $\frac{1}{2}$

Of the above list Messrs. Arellano & Garcia own only small interests in the Jesús and Carmen group.

THE NUEVA CHIHUAHUA (now called Centenario and Salamanca. See map) AND SAN JOAQUIN: These denouncements containing forty-four and fourteen pertenencias respectively, are located about 1000 to 1200 meters west of the Buena Tierra and Santo Domingo main shafts. There are two very prominent vertical rhyolite dikes traversing these claims, having a strike of nearly north and south, while several cross fissures cut through them to the northeast, coming in from the great old producers called the Carmen, Negritos, Mina Vieja, Parcionera, Santa Rita, and Dolores. These mining claims are situated near the center and surrounded by the richest section of the old camp, discovered and worked by the Spaniards, who took out over \$400,000,000 (pesos) within three hundred feet of the surface, without a whim, windlass or hoisting device of any description except coolie labor and donkeys, leaving the larger and richer deposits to be found at lower levels and mined under modern ideas and machinery.

Less than three years ago I picked out the sites for the shafts on the Central and Juarez mines for Sr. Manuel Gameros, which went into bonanza ore bodies at from 300 to 400 feet and increased the selling price of the properties from \$500,000.00 to \$1,500,000.00 gold, which latter figure was paid spot cash for them by the San Toy Mining Company about 2 $\frac{1}{2}$ years ago and there is now in sight in the Central over 10 million dollars as estimated by most competent and conservative mining engineers and all of the ore is above the 550 foot level.

The surface indications on these claims were not as favorable as can be shown in many places in Nueva Santa Eulalia. A shaft put down on the

adjoining claims to the east of the Nueva Chihuahua, called the Reina de Plata, has developed one of the richest ore bodies in the district. But mark my prophecy about this Reina de Plata and the holdings of the London Prospectors Lt. adjoining same which I negotiated the deal for and got a law suit on for my commission. The great ore body in this property is yet to be found and will be on the Aldama or the claims to west of same. When this Company gets a manager not afflicted with addled Divining Rod brains then something more satisfactory may be anticipated.

THE CARMEN GROUP: Consisting of twenty-seven and one-half pertenencias, adjoins the Nueva Chihuahua on the northeast. The old Carmen mine was one of the richest spots in the district and on that account was worked deeper than any other mine in Santa Eulalia by the Spaniards. The ore was all packed out through one opening, and although there are vast workings spreading out like a fan from the old shaft there was no waste dump, showing that the antiguas only moved ore, and, as in those days, there were not even wagon roads through the desert to the sea at Vera Cruz, taking months for a burro train to bring supplies and transport bullion, consequently, the richer ores only were mined, leaving (like the Parcionera) mammoth reserves of low grade ores standing on the lower levels of the mines. It is stated that there are also large bodies of the richer ores yet in sight in the deepest explorations, which still puts an embargo on exploring these lower workings. The price for the Carmen group ranges from \$4,000.00 to \$6,000.00 U. S. Cy. per pertenencia. Since sold by Dr. Emmerson and Frank Holmes of London to a London Co.

Embraced in the Carmen group are the producers called Negrita, Luisa, Santa Teresa and Incognito, which were large and permanent shippers during the Spanish reign, and still contain many thousands of tons of low-grade (but payable) ores in sight: These ore bodies, worked by modern hoisting plants, and aerial tramway transportation, should pay handsome dividends. Prices on these properties are similar to the Carmen group.

The Chihuahua Mineral Railway passes over the Centenario and Carmen group, and the waterpipe line from the Hacienda Robinson crosses these properties.

THE JESUS No. 2, containing nine pertenencias, is located in the northern part of the field, close to the great box cañon called the Cañon de Parcionera. There are large bodies of silver-lead ores blocked out which run from 15 to 20 ozs. silver and 10% lead.

THE ELVIRA OR FORTUNA, situated in the northeast corner of La Central denouncement, has been a permanent shipper of high-grade silver-lead ores. These claims were worked profitably by gambucinos and tributors when La Central was Tierra Libre, being worked in this manner for several years.

A prominent dike cuts across from these claims to the Mina Vieja (see map) and the claims are well within the great crescent-shaped bonanza ore deposits, that constitute the ore bodies embraced in the Central, Juarez, Cristo, San Juan, Bustillos, Galdeano, Potosi, Santo Domingo, Buena Tierra, Reina de Plata, Carmen, Santa Rita, Parcionera, Mina Vieja, Dolores, etc.

THE MAPULAS: These most valuable mineral claims are scattered promiscuously over the best portion of the bonanza zone of the camp, being small, choice parcels denounced and protected by the owners paying taxes when 90% of the field was abandoned. Mapulas Nos. 1 and 2 are surrounded by the Parcionera group and adjoining the Guadalupe ground to the south, which has produced the best grade and most of the mammoth returns from the Parcionera group.

MAPULAS Nos. 3 and 4 form the connecting link between the Parcionera (or old Zacatecas) and the Mina Vieja, being bonanza group equal or superior to any in the field. I have it from good authority that recent shipments from the Mina Vieja, adjoining this ground in one hundred ton lots, yielded at the rate of from 1000 to 2000 ounces per ton in silver.

MAPULA Nos. 5 and 6, adjoining the old Carmen mine, were rated by the Spaniards as the "choice plums" in their days, as explained in my remarks in the Carmen group.

MAPULA No. 7, now called La Fortuna No. 7, adjoining the Potosi, was sold to an English syndicate for a high figure.

MAPULA No. 8, is surrounded by the Santo Domingo claims (A. S. & R. Co.) and the famous Buena Tierra, what price this pertenencia when compared with its mates? For instance, the Buena Tierra owners refused one and one-half millions for their property, and their developments (in close proximity of this choice selection) do not cover two pertenencias, but include all their workings underground, and already show five hundred thousand tons of high-grade ore in sight.

MAPULAS Nos. 9 and 10, adjoin the great old producer San Juan, and the new Juarez and Central ore bodies are in close proximity to the deposits that induced Schwab & Co. to pay \$1,500,000.00 for the Central and Juarez mines.

THE CRISTO. El Cristo, containing ten pertenencias, is situated near the center of the mineral zone, bordering on the great producers San Juan, Central and Juarez. In January, 1900, Don Pedro Prieto bonded these ten pertenencias from Sr. Manuel Gameros for \$50,000.00 pesos, borrowing and paying \$10,000 on account at time of closing deal. He started shipping ore early in 1900 and up to January, 1904, he was paid net returns of \$1,293,049.00 gold for 33,638 tons of ore, or about \$38.00 gold per ton, after deducting freight and smelting charges, and other realizations of the A. S. & R. Co. It is safe to estimate that this mine produced, during Don Pedro Prieto's workings, over \$3,000,000.00 intrinsic value.

THE BALTIMORE. This has been considered the "Lemon" of Santa Eulalia, simply because the management, either intentionally, or through ignorance, have failed to follow up many ore pipes exposed in the shaft, which is down 1300 feet. Some day this property will fall into the hands of a progressive company, who will, with little expense, add another shipper to those in its immediate vicinity.

THE CAROLINA, which lies between the Baltimore and Potosi, and which now belongs to Mr. C. O'Callahan, is right up against the biggest mine in the world, and will be heard from when "Cal" gets the Santander and San Antonio Chico under full swing. He is keeping his best mine until the last to develop.

THE EMMA is a cheap property. It also borders on the Potosi and wants, like the Carolina, a shaft to be put down from 800 to 1000 feet to tap the great bonanza known to exist there. Since sold to L. M. Terry and Co., and included in Inglaterra Anexas group.

THE ESPERANZA, owned by Mr. J. D. McKenzie and Don Juan Creel, is situated south of the Cocineros and the Concepcion. This is bonanza ground where ore sprouts come close to surface in adjoining mines.

MINING CLAIMS LOCATED ON WESTERN AND SOUTHWESTERN SLOPE OF CERRO CAMPAÑA. The Pueblo of Santa Eulalia is positioned in the arroyo between Cerros Corina and Campaña, and to the east, northeast and southeast of the Pueblo the Cerro Campaña rises to an altitude of fully 1000 feet above the town. This mountain is composed almost entirely of igneous or Volcanic rocks, but marked by numerous rhyolite Dikes and a few fissures. These denouncements are named Silver Cliff, Posados, Novedad, El Bote Group, Transvaal, Fuente de Plata, Olympia (2), Lujan, Mexico Group, Ojala, San Louis, El Viernes, Colorado and Diamante. To the south of Adams Hills claims, are denounced the Enriquez Group which are in the valley lands, and to west of the Veta Grande three denouncements have been made called the La Luz, Josefina, and Lluvia de Oro. There is only one shaft of about 40 feet deep located on the Transvaal on all of this inviting mining ground. The Novedad is the only property of this list which shows lime in place on the surface, and while it may take more money to reach the lime contact where the ore bodies may be expected than at Nueva Santa Eulalia we believe that it only needs adequate working capital to win many mines on the western slopes of the Cerro Campaña. The best surface showings of Dikes are on the Transvaal, Bote, Fuente de Plata, Colorado, Silver Cliff, Ojala and Diamante.

In the western part of the field there are denounced the H. W. Taft, Armstrong, Rey Edward 2nd, La Beneficencia, Belknap, Russia, Tiptop, Loma Rica, Rey Solomon, Texas, Anna Segunda, Chicago Group, Alice Group, La Gloria, Anna, San Juan Group, Rey David, Concepcion and

Kansas Boy. Almost all of this country consists of cretaceous lime in place with two main Dikes cutting through the lime and junctioning on the Kansas Boy at which point there is a shaft down 350 feet without developing shipping ore. On the Concepcion there are a series of natural caves permeated with veins of low-grade iron ores. On the San Juan a shaft is down about 400 feet, but so far has not developed any shipping ore. Much work has been done on the Chicago without developing anything payable. The best showings on surface are on the Anna Segunda, Kansas Boy, Concepcion and San Juan.

The rest of the companies are listed in a former page, whose holdings are indexed in the colored map, have their claims in the eastern part of the camp, which we will reach later on. The mammoth wealth which these mines have yielded. It is safe to say that the two square miles of mineral lands embraced in the developed portion of the northern bonanza zone, which lies north of the Abundancia, and up to the Cañon de Parcionera, have produced more silver than any other two square miles on earth, the production assuming the gigantic output of over \$800,000,000.00 pesos, and probably, speaking conservatively, there will be a billion pesos mined from this same ground during the next fifty years. With the exception of the old workings in the Carmen, which was carried down to 600 feet, the Spaniards and Mexicans took out of this 800,000,000 Spanish dollars in working what only covered probably 10% of this ground, down to 300 feet.

IN THE BUENA TIERRA, the surface was but little mined and the recently discovered large bodies of ore came in at 500, 850, 1000, 1150, 1300, and 1400 feet levels, the main shaft being now down 1450 feet.

IN THE GALDEANO SHAFT OF THE SAN TOY MINING CO., which is down over 1300 feet, the surface manta extended into San Juan, Cristo, Juarez and Central, and is now proved and mined for over a mile, varying from surface outcroppings on Galdeano, San Juan and Bustillos to 550 feet below surface in Cristo, Juarez and Central.

This upper manta has produced over \$200,000,000.00 (pesos.) The probably greater ore bodies discovered in the Galdeano shaft came in at 800 and 1100 foot levels. In the Santo Domingo, Mina Vieja, Dolores and Potosi, outside of great ore spouts, which were followed from the surface, the main manta and chain of caves filled, or partially filled, with ore, were encountered at from 800 to 1000 foot levels.

In the Potosi the greatest deposits yet discovered on earth was tapped at 1000 feet which has been proved to go down to nearly 4000 feet, and covers many acres and with all modern machinery cannot be worked out in the next century. Besides the bore holes, which have been put down two thousand feet below the 1800 foot level from bottom of shaft, and which were in payable ore all the distance and left off in same class of material,

By following up some leaders exposed in an old tunnel cutting through the mountain towards the Bustillos and Zubiata, great ore bodies have been opened up above collar of main shaft; this ground was considered worthless less than three years ago. There is no question but what the Potosi is the largest and most valuable lead and silver mine in the world. The strike in the Reina de Plata was made at 450 feet. The old rich Carmen ore spout came to the surface in a small leader, only a few inches wide, as is to be seen in the old shaft at the present time.

The lower workings on each end of the two square miles of the northern bonanza ground, and in the center, as proved in the Santo Domingo, Potosi, Galdeano and Mina Vieja, indicate that it will eventually prove on lower levels, one vast system of caves, abras, mantas and mammoth ore deposits connected by old water channels; possibly 25% of this whole territory will be payable ore. We can state from official authority that the bore holes from bottom of Santo Domingo shaft (which is down 1800 ft.) are down below this level in ore for 2000 feet more.

What there is below 3800 feet is only conjecture. How deep is the lime sedimentary formation no geologist can tell. What is under the lime?. Even the divining rod cranks of Scotch extraction do not venture to electrify on this problem.

The great mineral flows that precipitated these vast treasures come up through the fissures from below and after we bottom on the lime zone, why not anticipate the source of the ore supply with a greater storage left in the mother formation. As an example of what may be anticipated in any part of these two square miles we will illustrate from reliable data, obtained by personal inspection, and information from the present manager of the San Juan mine.

This being one of the oldest in the camp, ranks fourth in production, having a record of from \$75,000,000.00 to \$80,000,000.00 of the highest grade ore in the camp. Mr. Goldsmidt, the Chihuahua agent for the Torreon smelters, is authority for the statement that he returned to the late Pedro Prieto, when he was operating the mine, from \$30,000.00 to \$40,000.00 per week. Prieto worked it from 1899 to his death in 1903; during which time he received from the Smelting companies over \$2,000,000.00. His widow took out over \$800,000.00 after his death. The Cristo has produced from \$2,000,000.00 to \$3,000,000.00 while worked by the Prieto family.

The Duran family realized over \$500,000.00 from the dumps left by the Spaniards on the Bustillos mine, and the lower ore bodies now being opened up in the Galdeano mine promises to be more extensive and richer than those partially worked by the Spaniards and Mexicans. That the lower ore bodies permeate the entire two square miles is evident from the fact that all of the shafts now down one thousand feet or more from the Mina Vieja to the Galdeano, a distance of one and one-half miles, have

cut three distinct horizontal ore bodies, ranging from surface to 1000 feet levels, and in one instance proved to go down to 3800 foot level. Has any mining engineer nerve enough to figure out the probable tonnage of this two square miles of bonanza ore deposits? Where virgin ground exists, recent exploration like the Juarez proves that there are untold millions to be won in this unexplored ground, which the Spaniards did not reach or prospect in their three hundred years of gophering in the grass roots. The same condition exists in the tuffa covered cap of the Florencia, west of the Central, and the London Prospectors, Ltd., ground, south of the Parcionera, and on the great holdings comprising Adams Hills, Holland and Overlooked to the west. Without compiling or pilfering to any great extent from any writings of the world's most eminent geologists, I will give you something local on the subject:

Geology

THE MINERAL DEPOSITS IN SANTA EULALIA MOUNTAIN.

These are contained in the early horizontal strata of limestone which forms the core of the mountain. The limestone is capped by a volcanic tuffa in varying depths, and is also intersected by a number of porphyritic dikes, which have influenced the mineralization. The ore bodies have been deposited by ascending and lateral mineral solutions which have found their way through the fissures, crevices and bedding planes of the limestone, and on the limestone yielding readily to the attack of these solutions, the latter eroded out great caverns, chimneys, pipes, etc., which they in turn filled with ore. These two operations, in eating out the limestone and the substitution of the ores, are presumed in most cases to have occurred simultaneously by what is known as "metasomatic replacement," so that the ore bodies throughout the course of ages were constantly growing in size and along the lines of least resistance. The shape and dimensions of these spaces were governed by the lines and planes of weakness offered to the eroding solutions. If the line of least resistance was along the horizontal bedding planes, broad, flat, spreading caverns were formed, which were called mantillas. Then if the solutions found a vertical crevice between the bedding planes, a chimney-shaped deposit was formed. So in this way every ore body has a connection with other bodies, thus forming an ore system. The all important point is the part played by the main, more or less vertical fissures or continuous crevices, which are the present source of all the ore bodies leading off from them. The extensive modern developments in the camp have demonstrated this to be a fact, and a vitally important one. Only through a recognition of this is one enabled to scientifically search for the ore bodies, which would otherwise present a purely erratic and labyrinthian aspect. These so-called fissures in the limestone have proved to be very persistent. They can be distinctly seen on the surface where the old Spanish or Mexican

work has occasionally opened them, and can usually be followed underground without much difficulty. They are not continuously ore bearing, frequently presenting merely an open crack, which widens and "pinches." The ore when found is followed and frequently it opens out suddenly into an extensive blanket (mantilla), or makes off through a pipe-shaped opening in a wall, and when followed frequently opens out suddenly into enormous cavern-shaped bodies. In the San Juan, as well as other mines, the caverns assume gigantic proportions, and present ore bodies that probably exceed in size and value any other ore deposits of this nature in the world. In one mine, the Mina Vieja, which we visited, the ore body exists, which as far as developed, shows a continuous vertical depth of 700 feet, a length of 300 feet and a width of 150 feet. This body is still an enormous producer of high grade ore, as it has been for many years past, being a continuation of bodies worked by the Ancients three hundred years ago. The entire limestone mass of the mountain is honey-combed with ore bodies, but connected up, as stated, in a more or less defined system, and however intricate and puzzling they are at first sight, the connecting fissures offer the necessary key to the situation. I consider this feature so essential to an intelligent grasp of the situation, that I have purposely enlarged upon it, and the present developments of the field cannot be really appreciated without it. The ores consist of chlorides, carbonates and sulphides of silver, galena and lead salts. They carry large percentages of iron, manganese and lime, which add materially to their smelting values. Originally the ores were deposited as sulphides from the ascending mineral solutions, but later descending waters brought a change in their character, through oxidation, to their present favorable composition, and in addition the descending waters produced a zone of downward enrichment, as shown by the recent deep workings in the camp. Much of the ore is friable and earthy in character, and can be readily mined with a pick and shovel, greatly reducing the cost of extraction.

Following this little bit of geology we will resume our descriptions, devoting a few pages to the possibilities of the new and eastern part of the great mineral zone. Commencing with the Abundancia (which is in litigation), the denouncements of the Puerto Arturo, Leonidas and Panama, are on the same ground as that covered by the Abundancia, and the titles depend upon the true lines of the Rancho Chinche, now being surveyed. These are the first claims on the eastern part of the field, bounding on the old Zubiato and San Andres, which were ancient and heavy surface producers. The Zubiato of one pertenencia belongs to the Chihuahua Mining Co., as well as the Coronel and the Anexas of the Zubiato and the Anexas de Coronel.

The San Andres is owned by Ambassador Creel and under option to Mr. S. G. Burn who informed me recently that he intended to buy,

or had bought it, I am not positive which. All these claims in this vicinity have most flattering prospects and surface indications of becoming permanent producers when properly developed. The Chihuahua Mining Co. has erected a 12 H. P. gasoline hoist on the Coronel and connected the shafts by a branch railway with the main line of the Galdeano. The San Toy Mining Co. and American S. & R. Co. are the first to install aerial tramways, the former from the Galdeano mine to the valley below the Pueblo of Santa Eulalia, and from thence they connect with the Mexican Central railway by a narrow gauge railroad, a total distance by aerial tram and railway of about eight miles, and the A. S. & R. Co., from the Mina Vieja to their ore bins at terminus of Ferro Carril Mineral de Chih. Thus the San Toy should become a heavy shipper; or will she wait until she erects her own smelters?

THE GLORIA & CONTINENTE No. 1 containing about 21 $\frac{1}{2}$ perts.

El Continente No. 2.....	,,	12	,,
La Isla.....	,,	78	,,
La Islita.....	,,	6	,,
El Colon.....	,,	12	,,
El Continente No. 4.....	,,	16	,,
Las Astreas.....	,,	10	,,

are included in the Arellano and Garcia groups before listed, aggregating 155 $\frac{1}{2}$ hectares.

Outside of the Gloria, which has been a producer for many years, having been leased to Mexican miners, no work has been done on any of the ground embraced in the 155 $\frac{1}{2}$ pertenencias. Mr. Schuyler Lawrence has recently leased the Gloria and Continente.

The whole eastern field outside of the San Antonio, Dolores, Gloria, Santa Juliana, Josefina, Dinamita, Aurora, Oriental, Chiribel, Mercedes and Ibera No. 2 is undeveloped. The deepest shaft is on the San Antonio which is down in high-grade lead (galena) for a distance of 1200 feet. The Santa Juliana ore body is developed by two shafts of 200 and 600 feet respectively. The Mercedes has a working shaft down 600 feet and is said that they have cut into a new and second mantilla.

The surface vein produced over \$500,000.00 under Ambassador Creel's ownership and workings. He sold them to the Chihuahua Mining Co., for \$100,000.00 gold several years ago. The Josefina is probably the most systematically developed mine in the eastern field, and great reserves of high-grade silver ores are in sight. This mine was abandoned for 200 years, and considered worked out, but by following up the old water channels immense new ore bodies have been developed, and I understand the owners, Messrs. Gosch and Lieves, are holding it at \$1,500,000.00. The great success made in reopening this old mine makes the "Wild Horse" and "Garibaldi" near it very inviting propositions to prospect. The Dinamita, recently bought for \$50,000.00, is a very promising mine.

The owners, who are West Virginia capitalists, are pushing development work rapidly under the able management of Mr. Burn, and a satisfactory find may be anticipated when the lower tunnel taps the vein at 500 foot level. (Later, this find has been made and property paid for.)

LAS ORIENTALES, of nine pertenenencias, has a shaft down two hundred feet in which several rich leaders and vugs of ore were cut. It has many favorable surface indications of ore spouts and will, when sufficiently developed, probably prove a payable mine.

The only sales made in the eastern camp since my report of 1905 (April) were the Chiribel to Bellis & Co., of Illinois, by J. P. Hutchinson, and the Dinamita to a West Virginia Co., by Col. Straughn.

The Dolores has been consolidated with the Insurgente and price raised to 600,000 pesos. Messrs. Schuyler Lawrence and Sartorius have taken a lease on the San Antonio mine, and I understand are doing well.

To the east of the Dolores a large tract of denounced lands went caduca in April last aggregating about 800 pertenenencias. Through Colonel and Dr. Shaw as my associates we had the first choice of this tract and denounced 66 pertenenencias called the Maria. This denouncement is traversed by the Jacobs and Estrellas Dikes. The "Good Luck" of 36 pertenenencias bounding the Maria on the north was the second denouncement made by Sr. George Macmanus and Lewis Herford. These two denouncements and the Estrellas to the south of Maria, owned by Sr. Antonio Cabello Silers, I consider the best of the undeveloped claims of the eastern field. On the "Augusta," adjoining the "Wild Horse" to the east, a natural cave has been found and explored to a depth of over 1000 feet without finding the bottom. It is lined with low-grade iron oxide ores with many feeders which have not been followed up branching off in every direction. This cave is situated 20 meters east of the "Wilde Horse" boundary and dips into the great porphyry mountain to the south. Although only about 800 pertenenencias went caduca the number of new denouncements here aggregates over 1000 hectares.

THE SAN CARLOS, MINERVA AND BELLA VISTA. There is a little group of mining properties situated near the geographical centre of the mineral zone that present many inviting features for investment of capital, where satisfactory results may be anticipated, embraced in the denouncements called the "Bella Vista," owned by Ross, Escobar & Co., containing 18 pertenenencias. The "San Carlos," owned by DeSmeth, Minck & Co., of 20 pertenenencias, and the "La Minerva" of nine pertenenencias, owned by Señor Jose Lago. Two shafts have been sunk on the San Carlos to a depth of about 100 feet, one of which encountered a pipe of ore, which evidently only needs following to open out into an ore body similar to those on the adjoining claims of the Gloria.

ON THE MINERVA, There are some fine surface blows of iron and manganese, and many old shallow "pot holes" where the antiguas

“gophered” out much payable ore. On the “Bella Vista” a large prominent rhyolite dike cuts through the Garibaldi and junction with Adams Dike on Las Plomosas.

ON THE CABELLO, situated near the northern border of proved mineral zone, a large manganese fissure is in evidence here which gives good returns in silver. Considerable ore has been shipped from numerous surface burrowings, and a 12 H. P. hoist (gasoline) has been installed to open up the property. Adams dike traverses this property, having a strike of nearly east and we anticipate something very satisfactory will be developed here soon.

THE PAGINA, is a very valuable piece of land, situated at the base of Picacho Oriental. It has a great iron cap-fissure, or dike, called the Promontorios dike, which shows more iron capping on these claims than anywhere else on its strike. The “Pagina” belongs to Mr. Nash, I believe, the manager of the F. C. Mineral de Chihuahua. Mr. Nash, of the former Velardeña company, now dead, controlled by B. F. Farrar. La Ibero No. 2 and the Peruana, are situated south of the San Antonio properties and rank among the best surface showings in the best part of the field. A shaft has been started on the Ibero No. 2 by Juan Treviño, now down 95 meters and payable ore has been cut. This shaft is only about 30 meters north of Peruana boundary. Later, under the able management of Mr. James Gasson, a large ore body of high-grade silver-lead has been cut into and this mine is now a regular shipper.

THE HOLDINGS OF DUDLEY & RYAN, are on the Buen Diaz, Ibero No. 1, El Continente No. 2, La Sorpresa and La Olga, containing over 200 pertenencias. These valuable mining claims are surrounded by producing properties and situated in the center of the eastern mineral zone. Very little development work has been done on them, but some day they will pass into the hands of some large company who, with a working capital of \$100,000.00 U. S. Cy., can be assured of finding as good ore bodies as are already won in this part of the mineral field.

Some new denouncements have been made to the northeast of the “W. J. Bryan,” outside of what I have designated as the mineral belt. Two of these were made by Messrs. Burn and Cabello, called the Colon and Puerto Rico, on which are said to be fine surface indications. These claims are in some low hills of the main mountain range which I have not inspected. Most all the country north of the designated boundary of mineral zone consists of great uplifts of limestone cut by deep arroyos, or box cañons. (Later, Messrs. J. R. Harbottle and John McKenzie have denounced some 70 pertenencias in this isolated range of hills in May, 1909.)

Occasionally a quartz porphyry dike cuts through them, but no work has been done to demonstrate whether the lime carries ore bodies or not. The same condition exists to the northeast of the Adams Hills claims at the western terminus of the known mineral zone, but on the “Kansas Boy”

and "Anna Segunda," situated N. N. W. of the Klondike, there is a rhyolite dike which looks favorable for ore bodies to be won in its vicinity. Some large empty caves are found on the Concepcion to the west of Kansas Boy with iron ore spouts leading off, which probably lead to ore bodies if followed up.

There were a number of denouncements recently made between Adams Hills claims and the Beneficencia, which I will not be able to put on map until titles are returned; they are called the Illinois-Wisconsin, etc. (Later, all new denouncements are on the new colored map and right up to date.)

The large tract of hills to the east of the village of Santa Eulalia, covering the denouncements called the Transvaal, Ampliacion de Transvaal, Lujan, Mexico, Colorado, Oversight, Silver Cliff, D. V. A. lower part of Abundancia, Virginia, La Flamarion, Union, Gabino Barreda, are entirely undeveloped except for a shallow shaft upon the Transvaal, where a favorable looking fissure outcrops for over 200 meters, within 100 meters of the village of Santa Eulalia. These claims are traversed by several large dikes which are correctly positioned on my map.

The upper manta has millions in sight yet in the Central and Juarez, and has produced over \$200,000,000.00 (pesos) in the last three hundred years.

The lower manta promises to be even larger and richer, and is in its virgin state in San Juan, Cristo, Juarez and Central. I will, before leaving the north and central portions, give brief descriptions of the territory held by the trusts and other companies, and which are the dividend payers of Santa Eulaila, and on whose operations it is hard to get reliable information.

The Larger Companies Operating in Santa Eulalia are:

THE AMERICAN SMELTING & REFINING CO.
CHIHUAHUA MINING CO.
SAN TOY MINING CO.
SANTA EULALIA EXPLORATION CO.
SANTA EULALIA MINING CO. (not working)
PROSPECTORS LIMITED (LONDON CO.)
CINCO SEÑORES MINING CO. (not working)
SAN JUAN MINING CO. (not working)
JOSEFINA MINING CO.
INGLATERRA MINING CO., ANEXAS DE INGLATERRA, EMMA, COCINEROS AND CONCEPCION
WEST VIRGINIA MINING CO., No. 1 (R. M. Lancaster, Manager. Not working)
WEST VIRGINIA MINING CO., No. 2, or DINAMITA MINING Co.
PARCIONERA MINING CO. Qualey Bros.

CONTINENTE MINING CO. (Dudley & Ryan—not working)
DON MANUEL GAMEROS & Co. (working Santa Maria only of Nueva Santa Eulalia.)
EUREKA MINING Co. (Santa Juliano Mine)
EL CRISTO MINING Co. (not working)
CEREGHINO & GAMEROS (Zacatecas Group—not working)
C. O'CALLAHAN (San Antonio Chico, Santander, Fortuna, Nueva Santa Eulalia, and Carolinas—working Santander)
ANTONIO CABELLO SILLAS. (Las Estrellas, Bote and Bote Anexas, etc.—not working)
POTOSI MINING CO.
MERCEDES MINING CO.
THE MANTA MINING CO. LTD.
UNITED METALS MINING CO.
EDDIE—CANNON MINING CO.
JUAN F. TREVIÑO

The Holdings of the American Smelting & Refining Co.

The only properties they actually absorbed in Santa Eulalia are the Velardeña and San Antonio, and $\frac{7}{8}$ of Mina Vieja and Dolores, but they secured long leases, which still have several years to run, on all of Seijas & Prieto's properties, in the northern part of the field, and in order to save description space I will refer you to our colored map, on which all of the holdings are in colors commencing with the Mina Vieja and Seijas' and Prieto's claims; to the north of same they run through the center of the bonanza zone to the Santo Domingo, aggregating about 200 pertenencias. They are raising about three hundred tons per day from the Santo Domingo, Dolores and Velardeña shafts, the two former of which are down over 1000 feet, which will correspond with the shafts on Dolores and Mina Vieja, when it reaches a depth of 1300 feet. A great bonanza has been recently discovered on the 1000 foot level, giving returns in car load lots of 100 oz. ag. and 50% lead. See notes later on same regarding ore bodies at 1000 feet levels in Dolores Mine next to Mina Vieja.

They have started driving on both levels at 1000 feet from Dolores and Santo Domingo shafts; when this work is concluded and connections made from both mines with the Velardeña shaft, the property will be opened on the 1000 foot level for a distance of about one mile long, which will again be opened in like manner on the 2000 foot level. Aerial tram line now completed to connect Dolores Shaft with ore bins at Santa Eulalia R.R. Station. The Chihuahua Mining Co. own and operate the Sta. Rita, Santo Domingo & Zubiarte, La Fortuna, Hueca, Coronel, Ampliación de Coronel, Anexas de Zubiarte and Las Leonidas.

The Potosi Mining Co. owns and operates the El Potosi.

Mercedes Mining Co. owns the Mercedes, Sta. Eulalia and Promontorio Anexas.

The San Antonio is situated in the eastern part of the field near the Dolores mine. Note there are two mines called Dolores in Santa Eulalia, one in the northern part of the field next to Mina Vieja, and one in eastern part of field next to San Antonio mine. San Antonio is under lease to Lawrence & Sartorius, who are shipping extremely high-grade silver-lead ores. Later, this lease has been since cancelled, although Messrs. Lawrence & Sartorius were paying 50 % royalty to the A. S. & R. Co.

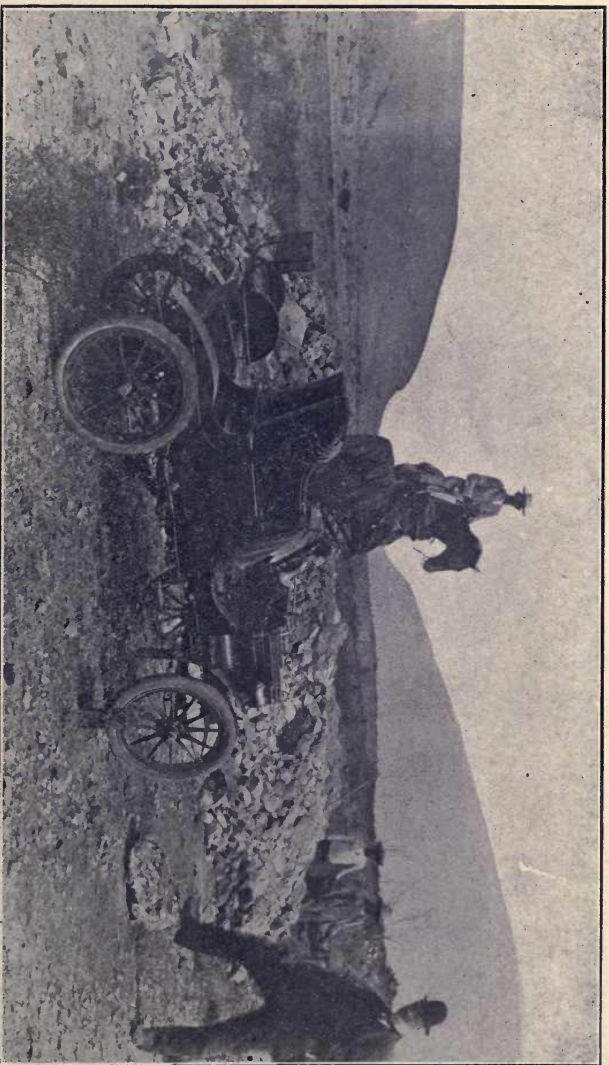
THE SAN TOY MINING CO. have purchased the Bustillos, Galdano, Central, Juarez (2), Independencia (2), Donato Guerra, and the Trinidad. The great holdings of this company are probably unequalled in value in silver ore actually developed in any part of the world. We will have more to say about this later on.

THE SANTA EULALIA EXPLORATION CO. have bought and paid for the Buena Tierra out of shipments from the mine. They had options on the Carolinas, San Antonio Chico, Fortuna, Santander and Nueva Santa Eulalia, but I understand on account of the losses which they suffered through the San Francisco earthquake and fire and the late slumping of securities all over the United States, they decided to not complete payments on any of the properties except the Buena Tierra. The others, as listed above, will revert back to Mr. O'Callahan, who seems to be well pleased with the arrangement, as these properties should be worth a great deal more than they were when they bonded them some four years ago. Mr. O'Callahan has since struck bonanza ore in extensive quantities in the Santander. He also owns the Nueva Santa Eulalia, San Antonio Chico, Carolinas and Fortuna, and a 5th interest in the Adams Hills, Holland and Overlooked and the Cecelia is owned by Mr. O'Callahan and John Mitchell.

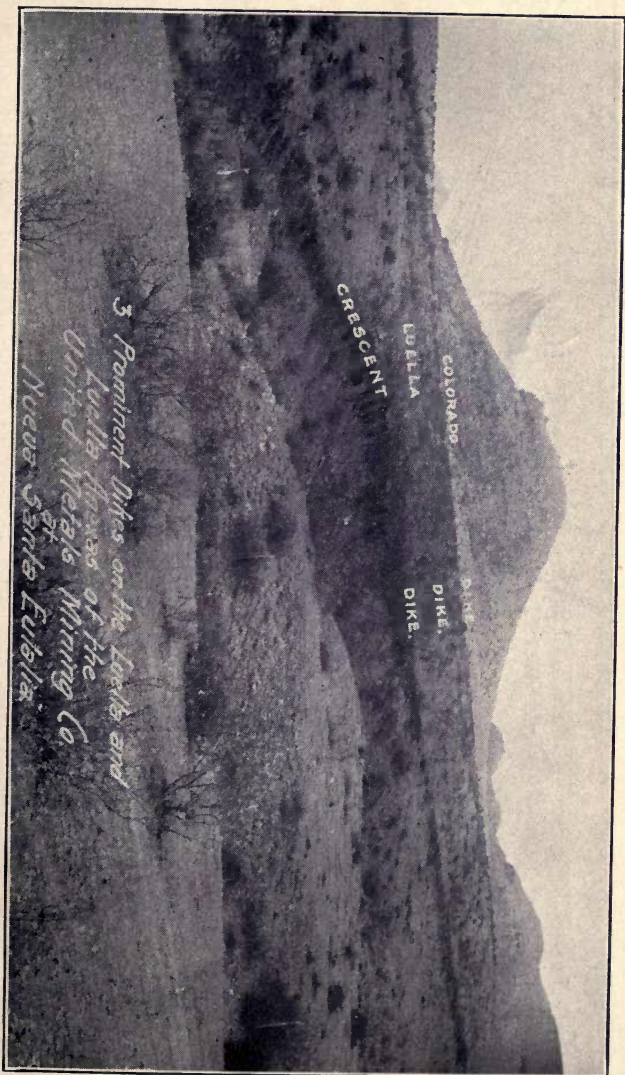
THE SANTA EULALIA MINING CO. (Hearst's Estate) own some very valuable property right in the heart of the bonanza camp, adjoining the Potosi and Buena Tierra, (see map). These properties have been great producers and but for bad management would today rank with the great bonanza mines of the district. They also control the Eureka Mining Co., in eastern part of camp, which has been a steady producer of low-grade lead ores for many years. This property is commonly known as the Santa Juliana and contains nine pertenencias.

THE LONDON PROSPECTORS LIMITED. (Reina de Plata), owned by G. Cheston and others of London, is a new bonanza added to the big mines in the last two years. Their shaft is now down over 800 feet; a large ore body was struck at 450 feet.

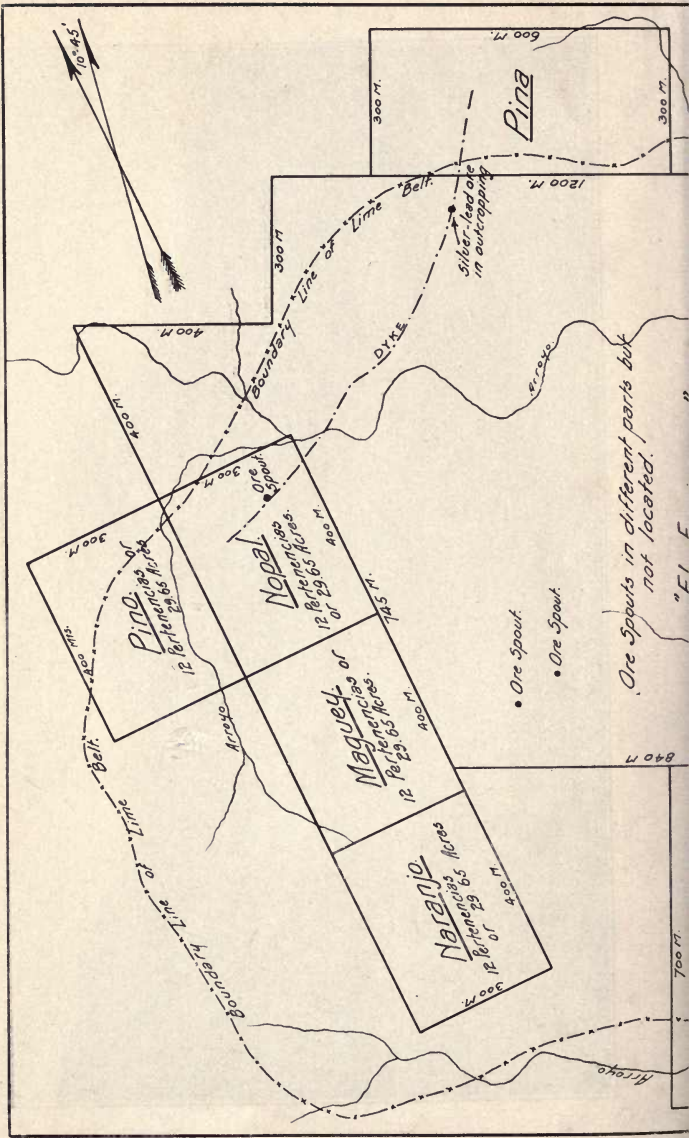
THE SAN JUAN AND CRISTO MINING CO's, owned and operated by San Francisco capitalists, are now sinking shafts to tap the

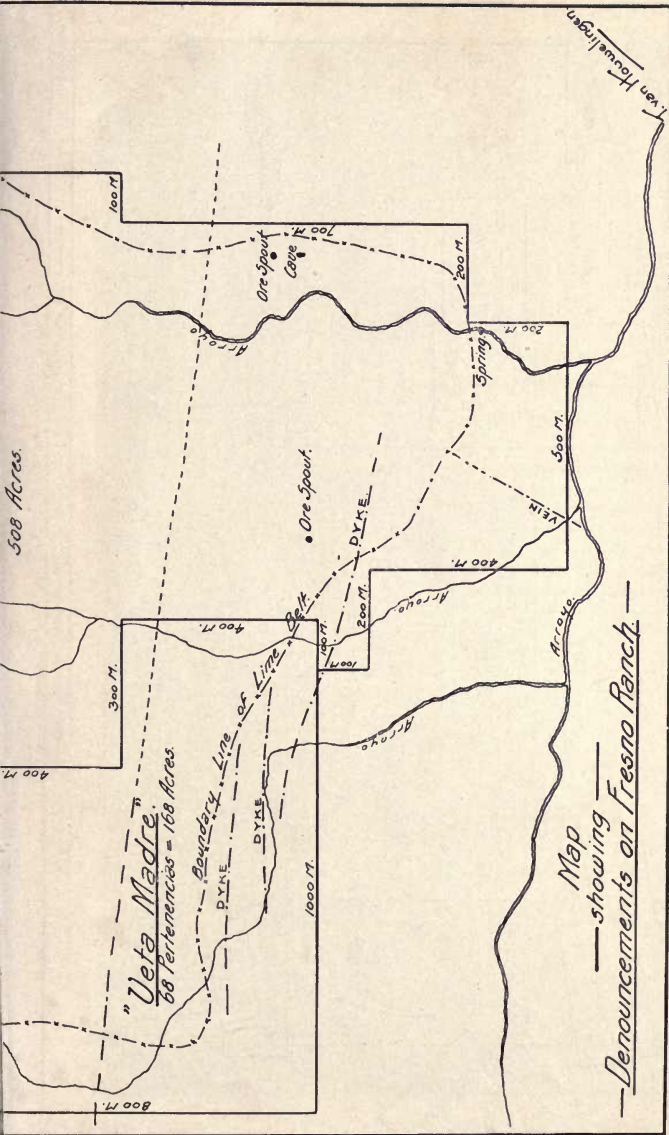


SANTA MARIA SHAFT—ENGINEERS BROOKS, SEAWELL AND ADAMS

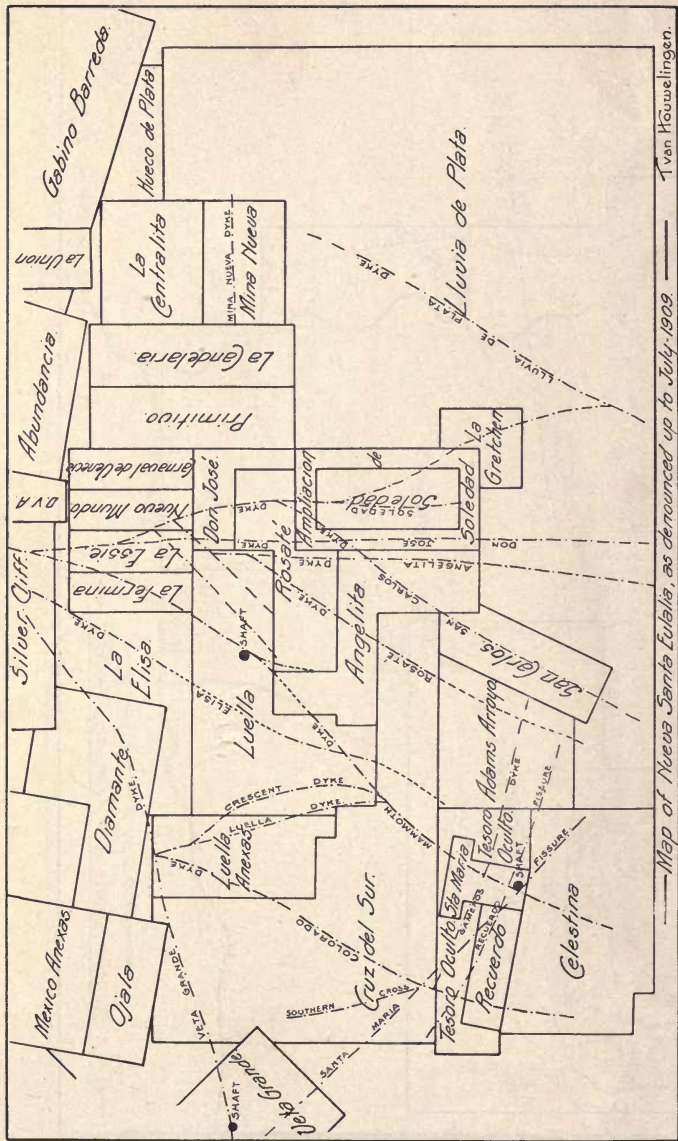


3 Prominent Dikes on the Luella and
Luella Branches of the
United Metals Mining Co.
at
Nueva Santa Eulalia





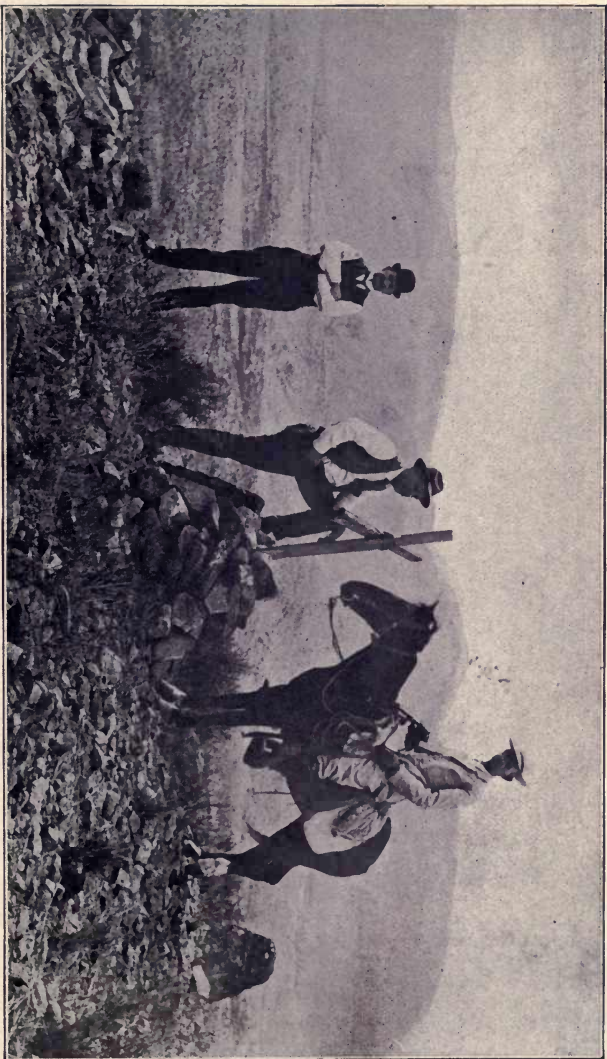
Map
— showing —
— Denouncements on Fresno Ranch —



Map of Nueva Santa Eulalia, as denounced up to July, 1909.

Van Houwelingen.

SUMMIT OF ESSIE MOUNTAIN AND DIKE
ENGINEERS ADAMS ON PONY "CONITO," AND BROOKS AND SEAWELL TO LEFT OF OLD SPANISH CROSS.



No. 2 manta at 1200 feet, discovered in the Galdeana mine of the San Toy Mining Co., which borders the San Juan on the south.

Later this work has been discontinued for some reason unknown to me. L. M. Terry & Co. own the Democracia and have options to purchase the Inglaterra Anexas, Emma, the Cosineros and Concepcion. They have erected steam hoists on the Democracia and the Inglaterra Anexas, and are pushing development work as fast as possible. The Cocineros is the only mine showing Cinnabar in Santa Eulalia on which Mr. Terry is now sinking a new shaft on or near an old ore spout which comes to the surface, and at about 150 feet below surface in the old workings some fine specimens of cinnabar are to be seen, being the only discovery of quicksilver in the camp.

THE PARCIONERA MINING CO. (Qualey Bros.) have discontinued work for the present on account of the shrinkage in value of lead and silver. Competent mining engineers who have surveyed and sampled the great ore bodies blocked out in these claims, put the net value at over \$800,000.00 U. S. Cy., which is the price asked for the property.

Later, they have started work again.

THE HOLDINGS OF DON MANUEL GAMEROS, who sold the Juarez and Central for \$1,500,000.00 gold, and the Democracia for \$10,000.00 gold per pertenencia, and is still holding the Esmeralda bonded for \$300,000.00 Mexican currency, and the Morales bonded for \$120,000.00 Mexican currency, the Santa Maria bonded to Harris & Co. for \$50,000 U. S. Cy., situated on Nueva Santa Eulalia, as well as the Ampliacion de Juarez and Las Plomosas; he also has one-third interest in the Zacatecas group, and one-third interest in the La Abundancia, out of which he will probably make another million before he is through with Santa Eulalia.

Josefina Consolidated Mining Co.

DEVELOPMENT WORK. During the last few years the property has been extensively developed. The main shaft was sunk to the third level and drifts extended therefrom to intersect the ore body developed on the first level. This ore body is now exposed from the first level to the third, at which point it maintains its regular dip and goes below that level. The shaft is being sunk for the fourth level and is down to the fourth station from which drifts will soon be started to intersect the ore bodies where conditions are more favorable for more extensive bodies. There is now over 1000 feet of shaft work on the property; over 1300 feet of drifting has been accomplished under the new company. The Josefina Consolidated Mining Co. has equipped the property with power sufficient to sink to a depth of 700 feet, and this will be accomplished during the present year. The present workings are 1500 feet below the surface of the northern end of the camp. Above notes furnished by Mr. S. C. Burn, Genl. Manager Josefina G. & S. Mining Co.

DINAMITA MINE. Recently sold for \$50,000 U. S. Cy., has been extensively developed under the existing option. The main shaft is down to a depth of 300 feet and is under progress to reach a depth of 700 feet, which can be accomplished with the present hoisting plant. Three levels have been run from the shaft on abras exposed thereni. On the Sirena and Dinamita some 450 feet of sinking and 1000 feet of drifting have been accomplished. It is well equipped with gasoline and electric hoists and a gasoline engine to generate electric power to run the hoist and the Ingersoll air drills which are being used in the sinking. The sale of this valuable property was concluded on December 1st, 1908.

THE GARIBALDI MINE. This inviting mining property, containing 103 pertenencias, or about 255 acres, is situated in the southeastern part of the great mineral zone of Santa Eulalia. The claims are located on the northern slope of a high mountain range, several peaks of which are old craters, which in some prehistoric period produced great flows of porphyritic lava, cantera and breccia which has submerged the more antique sedimentary deposits of cretaceous limestone, consequently the dikes and fissures (several of which head into the Garibaldi from neighboring denouncement), are covered with this volcanic breccia and tuffa. There is one dike (called Dockery's Dike), which after traversing the "Bella Vista" and "Sorpresa" claims to the northwest, runs close to west boundary of the Garibaldi, and after cropping for several hundred meters is covered with the aforesaid volcanic overflow; but this dike can be picked up easily by a little development work, and proved (probably) to traverse close to the entire 103 pertenencias on west boundary line.

It is in connection with these great dikes or fissures that the mammoth ore deposits of this marvelous zone are pregated.

The same may be said of the "Wild Horse," which joins the Josefina group on the south, and is plowed by both the Promontorio and San Antonio Dikes. (See map.) The Wild Horse contains 530 pertenencias and is open for a deal on good terms, and at a reasonable price.

THE GRAFT OF THE MINERS. As an illustration of the difficulties the superintendents of the mines have to contend with, Sup't Fred. Mitchell's experience, as related to a few of us on the train the other day, may be interesting. He said: they cut into an abra of bonanza ore in the Mina Vieja, where the stalactites of silver chlorides were hanging from the walls as large as candles. Mr. Mitchell was on the spot and took charge of its extraction. He remained on guard for 48 hours, then put a heavy wooden door on the entrance and double locked it with Yale locks. While he was taking a few hours sleep they broke down the door, and hearing "the rats at the cheese" he put on his gun and prepared for war. But their outside picket warned them and the "Apaches" escaped with probably \$2,000.00 (pesos) in specimens. Sup't Mitchell had his bed mov-

ed to the battlefield, stayed there three days, until all the richer chlorides were removed and safely stored. He again locked the original door and put another iron door inside which he fastened as securely as bars and locks could make it. The first night they broke down the wooden door, but found the iron one too much of an embargo for their tools and time. He thus saved one of the richest pockets of chlorides shipped in modern times. One car load from this abra was valued at \$84,000.00 (pesos.) How many of these deposits are pilfered entirely by the miners is only a matter of conjecture.

Latest notes regarding the Mina Vieja and Central Mines, being extracts from letter I wrote to Mr. Frank Holmes of London:

Chihuahua, Jan. 6th, 1909.

Mr. Frank Holmes,
Care Hongkong & Shanghai Bank
31 Lombard St., London, E. C.

Concerning the Mina Vieja.

Dear Sir:

I beg to hand you herewith receipt for a box of samples of ore from the Mina Vieja and Juarez mines, and am sending you by this mail three panorama views and four 8 x 10 photos of Santa Eulalia and some of her dikes.

In the samples of ores you will find limestone that should assay from 80 to 100 ozs. silver and samples of manganese and iron ore that will assay up to 2,000 oz. silver, and others that represent in the Dolores shaft of the Mina Vieja mine an ore body that was first cut at 500 foot level and opened out on the 1000 foot level and sunk on to 1100 foot level. The ore body exposed on the 1000 foot level is one hundred feet wide, one hundred feet deep and three hundred feet long, having all been found within the last twelve months.

Regarding the San Toy Mng. Co.

At present I can say that their new ore body followed from the old Juarez stopes into the La Central mine has opened out within the last four months to be the most extensive and richest ore body now exposed in Santa Eulalia. The Potosi has probably one hundred times as much ore in sight, but it does not carry the silver values of the new ore body in the La Central; here they have cut into the ore 150 feet long on a manta 30 feet thick and two hundred an fifty feet wide, which gives average returns of over 100 ozs. per ton. This great find is new and is evidently the same ore body that has been cut in the Dolores shaft of the Mina Vieja, and will swing in crescent shape through the Esmeralda and Florencia, and probably will prove within the next twelve months to exceed anything discovered in modern or ancient times, of this, the largest mineral zone

on earth. The securing of the Florencia, the Esmeraldas, the Central, the Juarez and Santander will undoubtedly get the cream of this crescent shaped ore body which is getting richer and larger every foot sunk on. (Later, I understand that this ore body in the Central is now proved 100 feet deep, 400 feet long and averaging thirty feet thick, and returning as shipped 100 oz. silver per ton and for the first time going down as a true fissure, or contact.)

Prof. Jackson, who, associated with Mr. G. B. Jacobs, made the sale of the Buena Tierra to Dr. Jackson and associates, has denounced a large area of country over in the foot hills to the southeast of the Silver Cliff. (See report of Mr. A. H. Donnewald on Veta Grande Mine.) The Professor tells me he has got on to something good over there, which does not surprise me after the oversight of Adams Hills and the other Broken Hill properties to the west of the village of Santa Eulalia. Some day I will go over and examine Prof. Jackson's new find and put his denouncements on our map. Later, in March last I went over with Mr. C. C. Harris and we virtually discovered "Nueva Santa Eulalia." I am informed that a shaft on the Veta Grande to the southwest of the Silver Cliff is now down over 100 feet and exposes on cross-cut near bottom fifteen feet of ore which bulks fifteen ounces silver per ton. Mr. J. J. Fagan, of St. Louis, Mo., is the promoter of this, and Mr. A. Donnewald, the present superintendent. (See his annexed report.)

In my Pamphlet published in 1905 on my map I drew a **LION** on the Cerro de Campaña or Silver Cliff mountain which many of my readers took for a cat.

NUEVA SANTA EULALIA

All of the new denouncements of this most promising addition to Santa Eulalia are on our new colored map, but we have ordered cuts made of Nueva Santa Eulalia and the Fresno Ranch Mineral fields and until the cuts are returned in order to issue this new general report on Santa Eulalia at once we will furnish blue prints of these two maps with each book sold. These new finds have caused more denouncements to be made in Santa Eulalia than any discoveries made for the last four years. Before Mr. Harris and myself arrived on the ground the Vete Grande of 48 pertenencias had been denounced and floated into a company of 1,000,000 shares at a par value of one dollar per share. One of Sr. Manuel Gameiros' prospectors had induced this great Mexican Mining Magnate to denounce ten pertenencias, called the Santa Maria, now bonded to Mr. C. C. Harris and myself. Three Mexican prospectors named J. J. Miramontes, Jesus Enriquez and R. Romo had denounced 75 pertenencias called the Solidar Ampliaciones de Solidar, and the Rosate, and a denouncement of twelve pertenencias had been made by some other Mexicans adjoining the Santa Maria called The Recuerdo. Mr. C. C. Harris (who

had first pick of the new camp outside of the 97 pertenenencias heretofore mentioned) first denounced the "Luella" of 75 pertenenencias and next the "Luella Anexas" of 33 pertenenencias which has been incorporated under the laws of Arizona with head office at Room 1118 No. 2, Rector St., New York City, with L. S. Ferry as President, into one million shares at a par value of five dollars U. S. Cy. per share, and a shaft started at point designated on blue print map. Mr. Harris next took up La Centralita of 30 pertenenencias, and within two weeks the new camp assumed the magnitude of 1328 pertenenencias as per scheduled list herewith.

Memorandum of Denouncements in Nueva Santa Eulalia.

Chihuahua, July 8th, 1909.

NAME OF DENOUNCEMENT	MADE BY	NUMBER OF HECTARAS
Carnaval de Venecia,	Picard Bros., Adams & Harris	12
La Luella	Harris & Adams	75
" " Anexas	" " "	33 (108 Floated in N. Y.)
La Centralita	" " "	30
La Nueva Mina	Booth, Adams & Harris	24
La Essie	" " " "	12
El Nuevo Mundo	Bunsow, Adams & Harris	12
La Celestina	" " " "	70 (Bunsows interest since purchased by Harris)
La Cruz del Sur	Ordaz, Adams & Harris	152
Adams Arroyo	Kaufman, Sallberg, Adams & Harris	40
Tesoro Oculto	Follansbee, Adams & Harris	25
Lluvia de Plata	Terrazas, Kraft, Adams & Harris	485
Hueco de Plata	Harris, Esperon & Adams	13
Don José	Bourgeois, Bartlett, Adams & Harris	13
Gretchen	Vriesema, Adams & Harris	12
El Primitivo	Enriquez, Adams & Harris	30 (Bonded \$200,000 U. S. Cy.)
La Candelaria	Hazan, Adams & Harris	30
La Fermina	Wichtrich, Williams, Adams & Harris	12
La Elisa	Morrill, Morehouse, Adams & VanHornwelling	41
La Angelita	Mexican Syndicate, Adams & Harris	38
La Soledad	" " " " "	75
Ampliacion de		
Soledad and		
Rosate		
San Carlos	Carlos Acosta & Co.	24
Recuerdo	Mexican Syndicate	12
Santa Maria	Manuel Gameros	10
Veta Grande	J. J. Fagan & Co., St. Louis	48

Total denouncements in Nueva Santa Eulalia 1328

After Mr. Harris had denounced the Luella and Luella Anexas the leading business men, including Sr. Alberto Terrazas, went in with us and virtually took the balance of the field of Nueva Santa Eulalia. I had it all surveyed and monumented. Santa Eulalia may now be subdivided as follows:

The Municipality of Santa Eulalia, which includes all of the developed Bonanza Zone around the Potosi, Juarez, Central, Mina Vieja, etc.

The North Santa Eulalia takes in everything north of the line of the municipality to Puerta Dolores on the Las Plomosas; East Santa Eulalia everything east to line of southwest corner of denouncement Chihuahua Vieja. Nueva Santa Eulalia at present is denounced to south line up to the Celestina, and east to southeast corner of Lluvia de Plata. This south line will undoubtedly be extended to the valley near station on Mexican Central R. R. called Mapula, or say two miles further south. In all, today there are over sixty square miles denounced, being the largest mining camp in the world, showing payable ore in nearly every shaft put down from 100 to 1800 feet.

The Spaniards, Mexicans and foreigners have worked in various parts of this great mining camp for over three hundred years, extracted over one billion dollars and were only in the grass roots, and under present modern machinery and expert mining knowledge this camp cannot be explored for the next 500 years, hence new bonanzas may be anticipated at any time.

Mr. L. A. Dockery, formerly superintendent of the San Toy Mining Co., who assisted me in surveying a part of Nueva Santa Eulalia, pronounced these lands as being the Gem of Santa Eulalia for surface indications.

Mr. D. B. Gillies, President of San Toy Mining Co., said the surface showings are a fac simile of the famous gold field of Tonopah, Nevada, and was the same as in the developed district of Santa Eulalia.

Mr. W. B. Brooks, one of the oldest American thorough practical mining engineers in Mexico, said: "If a man wanted a better thing to work on in Santa Eulalia he would want pay ore on the surface."

Mr. Chas. Seawell, in a conversation with Mr. C. C. Harris, said that he considered the showing on the Celestina and Santa Maria equal to any surface showing in Santa Eulalia, and better than most of them. Mr. Seawell, like Mr. Brooks, stands A 1 as a reliable and conservative, practical mining engineer.

Mr. Jas. Gasson, who has opened up more of the bonanza mines than any other mining superintendent of Santa Eulalia, handed the following letter to Mr. Harris:

Chihuahua, April 8th, 1909.

Mr. C. C. Harris, City.
My Dear Sir:

You took me over to see some of the veins and dikes of what is now called "Nueva Santa Eulalia" the other day. I had never before investigated this part of the country, and I was quite surprised to see, and be able herewith to state, that during my 22 years of observation in practical mining in the great Santa Eulalia camp, I have never seen any better surface showings, and as, during my practical mining experience in Santa Eulalia, I have had charge of the Baltimore, The Santa Juliana, and am at present superintending the Nueva Santander for Mr. C. O'Callahan, and

also opened up the great Juarez mine which now ranks as one of the best, if not the greatest and richest mine, of the camp.

I went over with you expecting to make an unfavorable report, but I am, like many others who had observed and prospected on all sides of this little basin in the foot hills, and while looking over the Luella, as you call the 75 pertenencias you have denounced, and the adjoining 33 pertenencias called the Luella Anexas, I was more than satisfied that there are great ore bodies to be found here in this basin of dikes, ore spouts, lime in place and everything that has heretofore led to the finding of some of the biggest mines in Santa Eulalia. After looking over the Luella and Luella Anexas I went down south of the Luella Anexas into what is called the Santa Maria of ten pertenencias and here I found a ten foot hole on a true fissure vein from which I took a bulk sample of vein matter four feet wide and had this assayed, giving me the following results: 4-10 oz. gold and 7 ozs. silver per ton, being the best results I have ever seen in Santa Eulalia on the surface. I have seen some samples which you say came from the denouncements to the north of the Luella, and the same dike passes through the Santa Maria, these samples are even better looking ore than the bulk sample I took from the Santa Maria vein.

All I wish to add is that I sincerely believe you have a good thing over in Nueva Santa Eulalia, and if my opinion turns out wrong I will be very much surprised.

Yours very truly,

Signed, J. H. GASSON

LATER:—Mr. Jas. Gasson has such faith in Nueva Santa Eulalia that he has stated to Mr. C. C. Harris that he will accept a situation as Supt. of the Santa Maria, Celestina or Luella when backed by sufficient working capital to develop to 300 or 400 feet, and wait for this salary to be paid at \$500.00 pesos per month until he strikes permanent shipping ores.

WHAT MR. LOUIS LANE THINKS OF IT.

LOUIS LANE
ARCHITECT
AND ENGINEER

THE SOUTHERN FIELD.

At the time of French invasion of Mexico, the experts sent to report on Santa Eulalia by the French government, said, after a thorough examination of the district and the workings, "that this oblong mountain was a kind of mother-mountain, or silver core from which the metal radiated in all directions, growing less rich, according to distance from the center. That it consisted of silver strata in the nature of vast deposits of ore, not so rich as abundant and inexhaustible. That five thousand men might dig and pick and blast away at it for a hundred years and at the end of that time the yield would be as rich, if not richer, than when they began."

The extensive underground developments made since the above report was written confirm all that was said and modify it mainly in this particular only, that while ore bodies radiate in all directions from this "silver core" to some extent they do not occur equally in all directions. It is now established that their origin is associated with principal fractures

extending transversely across this "oblong mountain" at about thirty degrees east of north and having such mines as "Mina Vieja," "Dolores," "Juarez," "Santo Domingo," "Potosi," etc., lying within and along their course. That the circulation of the waters of deposition has had its principal current both of original ascent and subsequent leaching within this zone and in the northeast and southwest course above stated; and that the point of origin was probably near the gentle syncline at the base of this oblong mountain at the southern extension of this fracture zone. The ore is found mainly along minor cross-fissures cutting these genetic fractures at various transverse angles. The southern extent of this principal fracture zone is now proven and developments in the "Veta Grande" and the "Santa Maria." That there will come the proving up of large and valuable ore bodies all along the southern extension of this main fracture zone can now be confidently predicted, and with more than the average mining certainly, and as a mere modification of the French report above quoted.

Signed,

LOUIS LANE

MR. A. H. DONNEWALD'S REPORT ON VETA GRANDE

J. M. Cannon,
President

W. D. Cannon,
Vice-President

Aubrey Eddie,
Sec'y & Treas.

EDDIE CANNON MINING Co.

Address all
Communications
Aubrey Eddie
P. O. Box 702
El Paso, Tex.

Mines located at
Sta. Eulalia, Chih.
and Los Fresno, Chih.,
Mexico.

Santa Eulalia, Chih., May 29th, 1909.

Mr. Wm. Adams,
Chihuahua,

Dear Sir:

I have at hand your letter of the 16th requesting a brief report on the "Veta Grande" property. I believe that you are familiar with the principal geological features of the property. Our main dike runs approximately north and south through the "El Viernes," "Ojala," and "Mexico Anexas" properties. Just east of the dike we have a fissure which is 12 inches wide at the surface and which we cut at the 100 foot level in the shaft. At this latter point the fissure was 14 feet wide and averaged 15 ounces of silver to the ton. At the 125 foot level our shaft was entirely in fissure matter and the assays averaged the same as at the 100 foot levels. As we went deeper the fissure dipped away from the shaft again and for fifty feet we went through solid porphyry. Below the porphyry a large bed of volcanic tuffa was encountered. The shaft is now down 86 meters.

Counting the main fissure, we have cut three fissures in the shaft to date and every time we cut a fissure there is a large increase in the volume of water.

There are several other fissures running through the property, some north-south and some east-west. They all assay on the surface from one to ten ounces silver.

The shaft is a two compartment shaft, each compartment being $3\frac{1}{2}$ " x $3\frac{1}{2}$ ". We are using a 25 H. P. Fairbanks-Morse gasoline hoist.

If there is any other information you want let me know and I will gladly furnish it if possible.

You may incorporate in your report what I have written in any way you deem best.

Hoping you will pardon my delay in answering your letter, I remain,

Very truly yours,

Signed,

A. H. Donnewald.

COPY OF MY LETTER TO MR. HARRIS:

Chihuahua, May 22rd, 1909.

Dear Sir:

In company with Mr. C. C. Harris, Messrs. W. B. Brooks and Chas. C. Seawell, I went to what we call "Nueva Santa Eulalia" yesterday in Mr. Harris' automobile and in less than one hour and a half after leaving the City of Chihuahua we were landed at the Santa Maria shaft, going via Mapula, or near the railroad station on the Mexican Central R. R. By this route there is a fair road for automobile or coach, the distance being about twenty-five miles, but in order to go more direct from Chihuahua take Calle Cuarta from Sr. Gamero's house on Paseo Bolivar, passing by the new cemetery to the east of Dales' addition and connecting with the old road to Santa Eulalia which crosses the Mexican Central R. R. near Estacion Alberto, and after crossing dry arroyos to east of R. R. take a trail and fairly good coach and automobile road passing to the west of small range of hills and crossing the San Toy R. R. (connecting with their ore chutes and aerial tram lines) at west end of said isolated hills and also crossing an arroyo where \$10.00 expense will make a good road across said arroyo or gully and continuing to the right on said gully on a good coach road to within 200 yards of the "Veta Grande" mine, to which there is a passable wagon road, and thence on a wide pack trail to the Cruz del Sur denouncement boundary, from whence an automobile or coach can drive up any one of the three arroyos leading to the Santa Maria shaft. We estimate the cost of putting in a good automobile or coach road to Santa Maria shaft via Veta Grande pass will not exceed \$200.00.

At the Santa Maria shaft, which is located about 100 feet north of the boundary line of the Celestina denouncement, the vein is dipping into the said Celestina so that in 250 feet (or less) if the vein continues on the present dip the prospecting shaft (now down 85 feet) will pass into Celestina ground on its underlay or dip. This Santa Maria vein also runs into the Celestina property on its strike in less than 100 feet and can be followed across the Celestina until it cuts into a high hill where the vein makes a much larger and more inviting outcrop on the side of

said hill in the Celestina properties. There is a fine showing of low-grade ore, similar to ore of the Juarez and the Santander mines of the bonanza zone of Santa Eulalia, exposed all the way down to the bottom of the Santa Maria shaft, and at 82 feet quite an abra of this ore is exposed leading into the Celestina on strike of the Santa Maria vein which is south 40° east and north 40° west. We followed this same vein across the Santa Maria, Recuerdo and into the Cruz del Sur, where it contacts and cuts through a very large dike called the Colorado dike and this same vein is the same reef that contacts again with the Veta Grande dike and cuts through same at point where they are developing said Veta Grande property and are down 95 meters on payable ore (see Mr. A. H. Donnewald's report on Veta Grande mine.) This same vein we understand, cuts through the Veta Grande into the La Luz, adjoining Veta Grande on the west until it reaches the line of the wagon road heretofore described as the short cut to the Santa Maria property or shaft on same from Chihuahua. When this road is put in shape an automobile can reach the Santa Maria shaft as quick or quicker (and over a better road) than the pueblo of Santa Eulalia can be reached over the present road from Chihuahua to Santa Eulalia.

The Santa Maria hill of ten pertenencias is a fine surface showing for the sure finding of large ore bodies when lower levels are reached in its development.

We then left the Santa Maria shaft and property, and in a few minutes were transported in Mr. Harris' automobile to a point on the denouncement called Luella and Luella Anexas, passing over and up Adams Arroyo denouncement to reach same. On the Luella and Luella Anexas severeral large mineralized dikes cut through the country and can be followed on their northerly strike up to the base of what is known as Silver Cliff denouncement.

These dikes we have named the Colorado, which traverses the Cruz del Sur and northwest corner of the Luella Anexas. The Luella dike which runs nearly north and south through Eliza, Luella Anexas, Tesoro Oculto and Santa Maria properties, the Crescent Dike which branches from the Luella dike on Luella Anexas and swings in half moon strike and junctions with Luella dike on the Luella ground. Another small hill seems to be all dike material which rises in the center of Luella arroyo, which is a continuation of Adams arroyo. This inviting hill has been appropriately named "Little Round Top." To the east of "Little Round Top" a mammoth dike, (and so named) cuts through the Luella from the north to the south and then penetrates and cuts clear through the Elisa denouncement and appears on the very summit of the Cerro de Campafia or Silver Cliff peak where an old natural cave, is in existance on surface from which (Mr. James Gasson says) the fumes of dynamite are distinctly to be smelled coming probably from the Potosi, or other

mines in the bonanza zone, showing conclusively that this mammoth dike (which is over 100 feet wide on the Luella) is the same dike that traverses the bonanza zone, and is connected with the same by some of the wonderful cave connections so ably described by Prof. Philip Argall in his report read before and at the transactions of the "American Institute of Mining Engineers" in November, 1901, and as republished in my booklet on general reports on Santa Eulalia in March, 1905.

After inspecting the Luella and Luella Anexas we passed to the right in the automobile up Harris' arroyo to near what is called Harris fissure, where are hundreds of acres of cretaceous limestone in place with several dikes and at least one blanket vein which is well illustrated in a photograph made by Mr. Harris with me standing over the mantilla (blanket vein) holding a cactus stalk over the vein resting on the limestone foot wall of the same which is from two to three feet wide, having a strike of N. 30° east and cutting into what is known as "Essie" hill or mountain, which rises several hundred feet above this point where photo was taken. We then climbed the Essie hill and on the very summit of same an immense dike is in evidence, hitting on its strike directly for the Galdiano, San Juan, Cristo, Juarez and Central ore bodies from which ancient records and recent ore shipments prove have been produced over two hundred millions of pesos. This Essie dike can be plainly seen and followed by the eye from Mount Essie by its yellow rhyolite colorings to the Galdeano shaft, being approximately 4500 meters, or $4\frac{1}{2}$ kilometers, and on Essie mountain the dike near south boundary splits into three great dikes which take a southerly strike as is compiled on Mr. T. Van Houwelingen's latest map of Santa Eulalia, which is the only authentic and reliable map of Santa Eulalia, now embracing an area of over 60 square miles. These maps are on sale at No. 119 Calle Aldama and also here are on exhibition many panoramic views of Santa Eulalia as well as nearly all the mining camps of the great mineral producing state of Chihuahua.

Mr. Harris has out in a few pot holes on the summit of Essie mountain dike, in every one of which low-grade silver-gold ore is exposed and great blocks of silicate of aluminum or kaoline ore of low assays in silver and lead is everywhere to be seen where the surface rhyolite capping has been broken into. Being a facsimile of the dike over the great ore body of the Juarez and Central. The three branch dikes to the south and west are called Soledad dike, Angelita dike and Gameros dike. The Soledad passes to the S. E. through the Don Jose Ampliaciones de Soledad, Gretchen and Lluvia de Plata denouncements until covered on the southern boundary of the Lluvia de Plata by volcanic overflow. The Angelita dike cuts through Don Jose close to the boundary of Luella, thence through Rosate, Angelita and San Carlos until it reaches Celestina where, and to the south of same, it is also covered by volcanic tuffa or cantera, but to south of these volcanic hills the cretaceous lime again comes to sur-

face in place and undoubtedly these dikes cut under the cantera overflows and can be picked up by careful development work by competent mining engineers who understand the geological conditions of Santa Eulalia. The Gameros dike cuts through Luella and Adams arroyo and appears in huge mineralized outcroppings on the Santa Maria.

Looking to the east of Mount Essie we observed, and Mr. W. B. Brooks has personally examined, the hills to the east of the denouncement called Primitivo. This territory is embraced in the denouncements called Candelaria of 30 pertenenencias, the Centralita of 30 pertenenencias, the Hueco de Plata of 13 pertenenencias, the Mina Nueva of 24 pertenenencias, and to the southeast is the Lluvia de Plata of 485 pertenenencias. Immediately to the east of the Essie denouncement of 22 pertenenencias is the Nuevo Mundo of 12 pertenenencias, next to the east is the Carnaval de Venecia of 12 pertenenencias and to the east of the latter is the Primitivo of 30 pertenenencias. The hills included in the Candelaria, Centralita, Mina Nueva and a great part of the Lluvia de Pata and Hueco de Plata are composed of cretaceous limestones in place with ore spouts, rhyolite outcroppings and dikes, all carrying silver and gold values according to assays made by W. H. Seamon of Calle Aldama 117, San Toy Mining Co., McManus and the American Smelting & Refining Co.

Mr. W. B. Brooks has personally examined and intended to denounce the ground embraced in the 12 pertenenencias to north and west of Essie denouncement called the Fermina which present most inviting surface showings and is almost entirely composed of cretaceous limestone to place with intrusions of rhyolite dikes and ore spouts.

After looking over the vast new field containing 1328 pertenenencias as per memorandum of denouncements and owners herewith annexed, we can say, in a most conservative manner, that this is a paradise for the mine seeker where it only needs adequate working capital to make mines, in our honest opinion, equal to the bonanza zone, as now developed and which according to ancient and modern records obtained from schedules filed in the archives of the old Spanish productions and modern productions have already produced over \$900,000,000.00 (nine hundred million pesos) and it will be more clear if one is to understand that fully \$800,000,000 (pesos) were produced by the Spaniards when the Spanish peso was worth more than the American dollar is today.

THE WATER QUESTION AT NUEVA SANTA EULALIA. At the present time there is permanent water on the Primitivo denouncement at the Rancho or Hacienda Arenal. The adobe houses, corrals and well being located in the northwest corner of the Primitivo denouncement where there are some small trees called "Arboles Fresno" (ash trees) "Arboles Sauz" (willow trees), or water trees. In this same arroyo near the south boundary of the Lluvia de Plata denouncement there is a large

growth of these same trees, but they are much larger and higher, some being 20 feet high and $1\frac{1}{2}$ feet in diameter. The arroyo narrows down to a box cañon a few hundred feet below these water trees and the little flat on which these trees grow is fed by many large cañons and arroyos from the high ranges of the porphyry mountains which rise to over 1500 feet above the basin to the northeast, and the foot hills of limestone surrounding the basin are cut by numerous small arroyos so that it is almost an assured certainty that good, fresh water can be obtained here in less than 30 feet of well sinking. At the Rancho Arenal, or Hacienda before mentioned, the well or pozo is about 20 feet deep and affords plenty of good, fresh water. A living spring is located about one mile to the east of the water trees up a big cañon. We believe that water can be obtained by sinking on the denouncement, called Adams arroyo, below the Luella denouncement and a permanent spring is located on the Colorado, titled denouncement, about 1-2 mile northwest of the Luella Anexas boundary line called Rancho Acosta, or Morelos. Considerable water (but not fit for stock or household uses) is being encountered in the Vetá Grande shaft, which is down 95 meters, still on porphyry and lode material.

We believe that water can be developed at almost any point on the Primitivo denouncement in the Arenal cañon or arroyo and also at any point in the same cañon or arroyo which cuts through the Lluvia de Plata to the basin to where the water trees are situated, as before stated.

Nearly all of the dikes and fissures as plotted on the map, cutting through the denouncements to west, northwest, southwest and south of Essie mountain.

There are many inviting places to start developing work on these hills of bonanza expectations.

Yurs truly,
WM. ADAMS.

In my former report I described many of the great rhyolite dikes, which are correctly positioned on our map of May, 1907, on which are positioned also all the principal shafts throughout the field, the mineral railroads, deeper arroyos, and a correction (according to official denouncements) of the boundary lines of the disputed claims. In concluding this description of the world's greatest silver mines, I will only add to the statement that what I predicted for Santa Eulalia four years ago has been fully borne out, and if lead and silver are not depreciated below all former records, they will be worked continuously for the next hundred years without scarcely impairing their source of supply. Many new mines will be opened up and made bonanzas.

The chief features that render mining profitable in the Santa Eulalia district are:

- 1 The great size and number of ore bodies.

- 2 The character of the ores.
- 3 The ease of mining.
- 4 The railway and aerial tramway facilities.
- 5 The absence of water in the mines.
- 6 The simplicity of the plants required.

It is impossible to give figures of the products and profits of the mines worked under lease by the Trust, because the company has no dealings with the public and have kept their affairs to themselves. Notwithstanding the number and size of the excavations in the limited mining ground prospected and the many millions of dollars that the mines have yielded, its future prospects are scarcely impaired by the achievements of the past.

Virginia City in its bonanza days never had the prospects Santa Eulalia possesses today, and when comparing Santa Eulalia with Leadville, Eureka, Broken Hill, Australia, or any other silver-lead zone in the world, they all combined are but pigmies with Santa Eulalia, which up to 1895 has only been scratched over by three hundred years of "gophering". And after five years investigation and observation of the geological conditions both on the surface of the vast mineral area and underground workings I feel sanguine in asserting that within five years the mineralized zone of about sixty square miles will be decorated with hundreds of hoisting plants raising millions of tons of rich silver-lead ores from nature's store from a depth of over three thousand feet, and it is quite probable that new bonanzas will be discovered on lands now in their virgin state, which may even surpass the Mina Vieja, Potosi, Buena Tierra or Central.

Contract drilling with churn or diamond drills costs from \$2.50 to \$3.50 Mex. per foot for 1000 feet.

Wages are as follows: Engineers \$8.00 to \$10.00 per day [Mex.] Firemen \$2.00 per day of 12 hours; Miners \$1.50 to \$2.00 per day of 12 hours; Laborers \$1.00 per day of 12 hours. Coal at mine, \$20.00 per ton, or about \$25.00 for each boiler under steam.

Gas generating engines will probably supercede steam, as it is cheaper than any other power in Santa Eulalia.

Gasoline engines are now much used and are much cheaper than steam.

The cost of mining and raising the ores in the largest mine is from 50c to \$1.00 Mex. per ton.

The climate is mild and healthful. One never experiences the rough blizzards and rigors of the general mining districts of the United States, or the extreme heat of many other mining camps of Mexico.

The railway facilities enable the capitalist and speculator to land in the midst of the hidden and developed treasures. One can visit any part of the field by taking the 8 a. m. train, returning to Chihuahua at

6 p. m. for supper. The facilities are unsurpassed. The mines are the most extensive and richest lead-silver producers in the world, and the greatest smelting and mining trusts of America cannot keep the people of the world longer in ignorance as to the exceptional merits of the Santa Eulalia district.

This winds up my notes on the southern field, but before leaving we will take a look from Cerro Campana, the highest point in the midst of the great southeast mineral zone.

From this summit which rises several hundred feet above other hills in the vicinity, one has a magnificent view of the hills, valleys, box cañons, arroyos and cliffs, painted by nature's incomparable handiwork, like one grand kaleidoscope, vast and beautiful, enticing and interesting beyond description. To the northeast, north and northwest, the east, south, southeast, southwest and west, the whole country is decorated with white monuments designating the boundaries of millions of hidden treasures in gold, silver and lead values. From this vantage point the great mineralized rhyolite lodes or dikes can be traced plain as rivers traversing the cretaceous limes and rhyolite formation. Nearly all of the hoisting plants as far north as No. 3 shaft on the Potosi and the Bustillos, the San Juan and Vergara, plants are in view, and standing on the hill between the Santo Domingo and San Juan on the northern field all the hoists of the northern field are under observation.

The Mining, Prospecting and Exploring career of one of Mexico's leading American Mining Engineer's, in Arizona, Nevada, California, New Zealand, Australia, Japan, Korea, China and Mexico.

By Mr. C. O'Callahan.

At the Chihuahua Foreign Club the other evening Mr. Wm. Adams, E. M., gave us a brief summary of his mining experience in three continents. He said:

First prospecting trip in 1871; found and located Ruby Hill, Shelduburne, White Pine County, Nevada. Took practical course in milling and assaying at Indian Queen Mine and mill near Candelaria, Esmeralda County, Nevada, from 1874 to 1878. Was appointed Superintendent of same in 1879; bought one-half interest in 1880, and sold to Boston syndicate at profit of \$150,000.00 to myself and John Howell, E. M., who was my partner. I was consulting engineer for Mr. Howell and Gov. Tritttle of Prescott, Arizona, in 1883, and associated with Col. F. M. Murphy (now President of the Development Co. of America) F. F. Thomas of Gwyn Mine, Claveras County, California, and Mr. D. M. Riordon, of the General Electric Co., recommended the famous United Verde Copper Mine of Jerome to Gov. Tritttle, who bought it for \$35,000.00, now owned by Senator Clark, of Montana, and worth fifty millions or more.

Sold Chalcedony Park, or the great petrified forest of Arizona, to the Drake Co., of St. Paul, Minn., in 1887.

Went to Australia in 1887; first took charge of Tearoa Gold & Silver M. & M. Co., of Waiorongomai, New Zealand; next was appointed General Manager of the Broken Hill Junction S. M. Co., in 1888, which position I held for two years; then went to Western Australia (among first of this great gold field rush) traveled as expert for several large mining syndicates of London and Paris. Selected the Norseman and arranged sale with Dr. Simon of Paris for £27,000 which he floated in Paris and London for £300,000; arranged purchase of Sons of Gualia Mine near Mt. Leonora, and bought for Mr. Wm. Prichard Morgan; M. P., of London, for £5,000 which he floated in London for £300,000 in £1 shares, which went to £9 per share. Mr. Morgan made over £1,000,000 out of this mine. I went to China in 1897, and joined Mr. Morgan in Chozinzi, Japan, then travelled for Chinese Steamship Navigation Co., examining all of their coal mines in Pichile, Kiangsi and other provinces in China.

In 1899 went to Korea, was loaned to the Emperor by Mr. Morgan, and travelled for nine months as expert extraordinary for the Emperor, inspecting all of the household mines for him, and during said exploration selected for Mr. Morgan the gold mines of Wonsam which he has handled very successfully since, paying the Emperor 300,000 yen [£30,000] for the concession.

In 1900 I was engaged by Mr. Morgan's Oriental Syndicate, of which Li Hung Chang was one of the principal owners, to explore for precious metals in the province of Szechuen, China, which contained 66,000 square miles, and the mining region is at the foot-hills of the Himalayas, 1,500 miles up the Yong Tse Kiang river from Shanghai. My companions were Dr. Jack, geologist from Queensland, Australia, and his son, and J. Burn Murdock, of London, and 52 Chinese retinue. We got into trouble with the Boxers and had to fight them for two weeks, when we were rescued by 500 Chinese soldiers sent from Chong Kiang, the Capital, by the Governor General of Szechuen, who had imperative orders from the Empress Dowager to bring us out safe under penalty of losing his head if we were injured. Arrived at Shanghai in September, 1900; sailed for Paris and London, thence to Sydney, and thence to San Francisco, arrived in Chihuahua, Mexico, in April, 1901; first visited the "Dolores" mine, recently sold to the Venture Company of London for \$1,750,000.00. Made arrangements to take this property to London with one of the owners, but failed to make terms with another who held control; went out to the Urique District in 1902; secured an option on the famous Lluvia de Oro mine for \$600,000.00, \$10,000.00 deposit, \$50,000.00 in twelve months, and balance in two years; negotiated with General Electric Co., and Development Co., of America, but one of their experts turned it down. It was afterwards sold to Coleman & Co. for \$2,000,000 gold.

It now has more than \$4,000,000 in sight. Commenced investigating the Santa Eulalia mines in 1904, and have been working up the present gigantic deals for the mines of Santa Eulalia from that time to date.

Yours very truly,
Signed, C. O'CALLAHAN.

Santa Eulalia Exploration Company

Dr. H. Nelson Jackson
Managing Director

F. Chappellet
Assistant Manager

J. H. Gilmore
Superintendent

Telegraphic address: Care Chihuahua Investment Co., Bedford
McNeill Code.

Address all correspondence
to Apartado 206.

Office of the Company
22 Geary Street
San Francisco, Cal.
119 San Francisco St.
El Paso, Texas

Location of Properties
Chihuahua, Mexico.

Chihuahua, Mex., Dec. 12th, 1908.

TO WHOM IT MAY CONCERN.

I take pleasure in stating that I have had Mr. Adams make a report on the San Juan and El Cristo mines of which I also represent, and his report is conservative and reliable, and there is no mining engineer in this country who is as well posted on this great mineral zone as Mr. Adams.

I know that Mr. Adams has been making the Santa Eulalia camp a special study for the last four years, and can show any one over the field and write up, or verbally describe its merits equal to any one.

Yours very truly,
Signed, F. CHAPPELLET, Ass't Manager.

Some of the most noted geologists of the age have made mistakes at Santa Eulalia.

For instance, Professor Hill said there were no true dikes, only surface fissures and wedge cracks; he also turned down the Juarez and Central mines less than two years ago when Mr. C. O'Callahan had them under option for \$600,000 U. S. currency, \$10,000 deposit, balance on five years working lease at royalty of 15% on ore shipped.

A coal expert from Wales, England, turned down the same mines six months before when I had them for \$500,000 on same terms. His name is Krantkshaw, and he was paid £2,000 and expenses to come out here and lose \$10,000,000 for the English syndicate that sent him.

The world renowned Professor John Hayes Hammond turned down all of Santa Eulalia about twelve years ago for \$50,000 Mexican money, when Mr. Robinson, who built the Robinson House, sent him to examine his holdings, and held zona to all Santa Eulalia at that time.

Even Mr. Malcolmson failed to recommend the Potosi and various other bonanzas as late as eight years ago for the American Smelting & Refining Co.

None of these professors go to Santa Eulalia now; they are paid high salaries to stay away.

Yours truly,
Signed, WM. ADAMS.

There are some fifteen square miles of territory denounced, bordering on all sides of the true mineral zone, on which there are many favorable showings, particularly the Victoria group, which belongs to Mr. O. Sartorius.

THE GREAT MINES OWNED BY MR. O'CALLAHAN. Beginning at the north end of the field near Mina Vieja, which is one of the richest mine's in the camp, the Santander, containing nine pertenencias, is proving equally as good a mine as its bonanza mate as work progresses. It is equipped with a 15 H. P. gasoline hoist, shaft down 600 feet, great ore body exposed, no stoping being done, but shipping from 14 to 16 car loads per month which averages from 40 to 60 ozs. silver, some cars running as high as 100 ozs., with 25% iron, 15% lime and 20% silica. Double compartment shaft, power plant will explore to 1000 feet and work mine to 800 feet. This ore body is between the Mina Vieja and Central Dikes, and promises to yield millions. There has been over one hundred millions produced within a square mile of the shaft.

(Later, Mr. O'Callahan informs me he has connected his lower level on this great ore body and can now ship a car load or more per day without stoping.)

LAS CAROLINAS, to south and adjoining Potosi, is undeveloped, but shows a strong fissure cutting through the entire length into Potosi, and in the Potosi the great ore body is worked up to the boundary. This ore body is nine hundred feet long, four hundred feet wide, and proved to 3000 feet deep and still in ore in the Potosi.

THE SAN ANTONIO CHICO, is equipped with a 25 H. P. double drum hoist shaft down 600 feet, following ore body into old Zubiarte, which was one of the bonanzas under Spanish administration, and although the Zubiarte has only one pertenencia it is valued at one million dollars U. S. Currency. The San Antonio Chico has 24 pertenencias. It is within 500 meters of the Chihuahua Mining Co's Mineral Railroad, and ranks as one of Santa Eulalia's probable bonanzas.

LA FORTUNA, contains 12 pertenencias, adjoins the famous Galdeano and Bustillos, both of which are steady producers, and held at over two million dollars each. There is no work or machinery on the Fortuna.

THE NUEVA SANTA EULALIA, has produced about \$200,000.00 as surface burrowings. It contains 12 pertenencias, and near the southeast corner is marked by the Promontorio Dike or Contact, which, when opened in the Josefina to the south, has now in sight ore bodies which measure up over \$1,500,000.00. (See notes regarding old Sorequiro, now called Josefina, in general report.)

A shaft can be started on payable ore and there is no reason why the Nueva Santa Eulalia mine should not be as valuable as the Josefina when correspondingly developed.

Yours very truly,
Signed, Wm. ADAMS.

March 18, 1909.

P. S.—Since inspecting the Santander Mr. O'Callahan has struck the great ore body on the fifth level, and it is bigger and richer than on the third level. It promises to be a second Mina Vieja, which alone has produced \$200,000.00 (pesos)

Brief Report of the Zacatecas, Guadalupe and Corpus Mining Properties of Santa Eulalia, State of Chihuahua, Republic of Mexico.

Chihuahua, Dec. 12, 1909.

AREA AND LOCATION.

The Zacatecas group contains 27 pertenencias, which are situated on the northern part of the Santa Eulalia Mineral zone.

The old producers, called the Negritos and Carmen, are also in the immediate vicinity. The Carmen is said to have been the richest and one of the largest producers under Spanish and Mexican workings, and the old shaft and its ramifications were the deepest at that time in the field, being down over 600 feet.

The surface on the Zacatecas and the Guadalupe, especially, are most favorable for development of ore bodies in mantas and caves near the surface. The old Santa Rita was a large producer under Spanish and Mexican administration and I understand large ore bodies have been penetrated at from 1000 to 1200 feet in the bore holes put down recently by the Chihuahua Mining Co.

Less than three years ago I had the Juarez, Central and many other of the big mines recently sold for big figures, in my hands at low prices, and on most favorable terms for payment, but failed to find purchasers on account of an inexperienced expert (English) who turned them down. The surface showings on the Zacatecas and Guadalupe are equal to those on the Juarez and Central.

I was the engineer who selected the sites for the shafts sunk since by Don Manuel Gameros on his properties, and I am sanguine that I can select equally favorable locations for developing shafts on the Guadalupe and Zacatecas, where expenditure of like amounts should produce equally satisfactory developments of ore.

The Carmen dike cuts through the Zacatecas (See map). The great producers immediately to the east of the Zacatecas group have a billion record of over \$400,000,000.00 (pesos).

I know of nothing on the Santa Eulalia field that I can recommend as favorably at the price and terms as these available, for the properties under consideration. They are in my hands for sale. The titles are perfect.

The Fresno Ranch Mines.

For over a year an old prospector named Gus Jordan and his Mexican mate, Romeo Ferro, had been talking to Mr. W. B. Brooks and myself about a second Santa Eulalia existing on the Fresno Ranch about 14 miles southwest of the city of Chihuahua, in the same range of mountains as the city is located in, being the main range of mountains that extends on west side of valley towards El Paso to the north and Ji-

menez to the south. Finally, in April last, in company with Messrs. Brooks and Harbottle, I went out to see the smaller Santa Eulalia and found about 400 pertenencias of cretaceous limestone uplifting in a basin surrounded by porphyry and permeated with rhyolite dikes, ore spouts of low-grade iron-capped chimneys, regular fissures and every surface-showing which I have described in detail as existing in the proved bonanza fields of Santa Eulalia. There are numerous old workings, probably made by the Spaniards hundreds of years ago, and large slag piles in the immediate vicinity. Water and wood are abundant and ample for all purposes right on the ground. Two hundred pesos will build a road via Hacienda Mapula into the mines and principal springs which had a flow of over 18 miner's inches before the rainy season started. We annex a blue print of the denouncements made here within the last 30 days aggregating 464 pertenencias, the first selections of which, aggregating 353 pertenencias, is owned by the Fresno Mining Syndicate. We want to form development companies and will give bonafide mine seekers terms at Fresno that must invite and induce active operations at an early date. I annex Mr. W. B. Brook's letter to me regarding his opinion of the new camp.

Wm. B. Brooks' Report on Fresno Ranch Property

Chihuahua, Chih., May 11th, 1909.

Mr. Wm. Adams,
Chihuahua.

Dear Sir:

About fourteen miles southeast of this city there occurs an anticlinal fold in the formation which has brought to the surface a portion of the same lime deposit that composes the Santa Eulalia district and which is nowhere else visible on the surface between these two points. The eruptive flows have been scored away leaving about four hundred pertenencias of this lime exposed showing in numerous places which I have examined replacements of manganese and iron carrying (according to assays taken by Mr. Harbottle and myself) some values, one assay taken from about three feet in depth and across three feet giving eight and one-half ounces silver per ton.

These replacements so far as I have observed seem to occur along, or close to, the contact of the lime with the eruptive rock and along the numerous rhyolite dikes which cut the lime.

I have observed a number of these dikes and there are probably others as I have only been on the ground parts of two days and found it impossible to get over it all in that time.

In company with yourself I had occasion to examine your Broken Hill property of Santa Eulalia a few months ago and together we traced the Central and Van dikes through it and down into the valley past the terminal of the San Toy tram line almost to the Mexican Central railroad. I have since crossed these dikes West of the Mexican Central railroad and have observed the strike of them, both from the Santa Eulalia end and

from the hills adjacent to the Fresno lime deposit and find that they should cut directly into the latter.

I designate this as the Fresno lime deposit on account of its location on a ranch of the same name.

I know of no piece of surface ground in the Santa Eulalia district that has a better showing on the surface than is seen at this lime deposit.

There is a living spring of fine water at the highest point where the lime contacts with the country rock and at its lowest point is an abundance of water. A good mountain trail leads direct to it from Chihuahua and the distance can be covered in about three hours. There is a good carriage road by way of the Mapula ranch and arroyo to within about two miles of the lime on the east side.

By spending about two or three hundred dollars this two miles of road can be fixed so as to reach the lime on the east side by carriage from this city in about three hours.

There is on the ground scrub-oak for fuel and I am told by the natives that an abundance of large pine timber is to be had three or four miles beyond.

Yours truly,

WM. B. BROOKS.

To Bonafide Mine Investors and Promoters

Associated with the leading business men of Chihuahua I have recently denounced 1282 pertenencias in Nueva Santa Eulalia as per list on page 31. Also in Eastern Santa Eulalia I am interested in the Wild Horse of 523 pertenencias and the Maria of 66 pertenencias, also to the southwest of the Pueblo of Santa Eulalia and within twenty minutes' ride or walk. In partnership with three of the leading mining men of Santa Eulalia I am holding 172 pertenencias known as the Holland, Overlooked, Demacias and Adams Hills, and the Fresno Mining Syndicate, which I organized, and in which I have as partners five of the leading merchants of Chihuahua.

We have started two development companies in Nueva Santa Eulalia and the Fresno Syndicate will start developing one 12-pertenencia block on the Fresno ranch properties, as per blue print annexed. I selected these most excellent surface showings after five years most careful study of this great mineral producing field and the merchants went in with me to revolutionize the old system of asking mine investors to pay for the privilege of trying to find a mine, or make deposits on undeveloped properties.

I can convince any practical mining engineer who has had a few years of experience in Mexico cretaceous lime formations, like Santa Eulalia, Naica, Sierra Almoloya, or Sierra Mojada that our surface dikes, ore spouts, fissures and iron-capped veins are identical with the bonanza portion of any one of these great producing mining camps.

We will give ample time to prove our properties before we ask capitalists to pay for them, or we will give promoters a chance to organize

development companies, taking a fair proportion of treasury stock in lieu of cash. The Fresno syndicate denounced 322 pertenencias which is divided up into 12 pertenencia blocks. For a start we will give a mine investor the pick of any one of these 12 pertenencia blocks for \$6,000.00 Mex. Cy., one half-cash and one-half payable on arrival of titles. We have sub-divided this entire old Spanish camp in blocks of 12 pertenencias, each like a townsite, and propose to adopt the new and novel scheme of offering alternate blocks to development companies and will give them a deed to any 12 pertenencia block when they have expended \$15,000 pesos on bonafide development work. The old camp is sub-divided like a checker board with red and black squares. We will deed over the black squares to development companies on their spending \$15,000 pesos on each block of 12 pertenencias and hold the red blocks for future consideration.

The local syndicate propose to develop one 12 pertenencia block themselves at a point where we have ten meters wide of an iron capped vein carrying stringers of lead assaying $62\frac{1}{2}\%$ lead and $8\frac{1}{2}$ oz. silver per ton. There are at least one hundred spouts of iron-capped ore showing on the surface of these claims, all of which carry some values in silver and the Great Central Dike of Santa Eulalia crosses the valley and cuts through the Fresno mines from 12 to 20 feet wide. This is surely the paradise for the mine seeker or investor.

Yours Respectfully,

WM. ADAMS, E. M.

Terrazas, Chih., July 10, 1909.

To whom it may concern:

This is to certify that I accompanied Mr. W. B. Brooks on his first inspection of the Fresno Ranch Mines and took a bulk sample from the surface of the large iron-capped vein mentioned in Mr. Adams' report which gave me returns of 8 ozs. of silver per ton, and I understand it is at the same point where Mr. Adams opened up the vein to about 3 feet deep and got assays of $62\frac{1}{2}\%$ lead and $6\frac{1}{2}$ oz. silver per ton. I have mined in, and inspected most of, the lead-silver mines of the state of Chihuahua where limestone forms the country rock, and the surface showings at Fresno are the same as in camps above listed. I have read over Mr. Brooks' and Mr. Adams' Reports as printed above and fully endorse everything they have stated.

Signed,

JOHN R. HARBOTTLE.

Special report on the Fuente de Plata and Colorado, containing 116 pertenencias.

These claims circle the Southwestern base and center of the Cerro Compañia, on the top of which is located the Silver Cliff claims of 130 pertenencias.

A very large dike swings in crescent course through the Fuente de Plata and Colorado and giving returns of 2 to 3 ounces silver and traces of gold. This dike is the most beautiful of all the dikes of Santa Eulalia in its colorings of iron oxides and manganese. It stands out distinct and

massive and is the first great lodé visible from the train windows as passengers come up the arroyo approaching the pueblo of Santa Eulalia. Starting near the border of the Transvaal on the Fuente de Plata a tunnel site can be obtained leaving over 1000 feet of backs to cut this dike and the great outcroppings on top of Silver Cliff or Cerro de Compañía where the Soledad and Elisa Dikes junction and again branch, one heading for the Potosi and the other for the Buena Tierra. It is near this junction point that the fumes of dynamite are said to come to the surface in two natural caves to west of the dike junction, showing that the bonanza zone has a cave connection with the summit of Cerro Campaña, thus forming the connecting link with Nueva Santa Eulalia to the south.

We believe that a tunnel started on the Fuente de Plata, as before stated and having a course due south will open up bonanza ground. These properties (the Colorado and Fuente de Plata) should have a developing capital of at least \$50,000.00.

SPECIAL REPORT on the mines on the apex of the Cerro de Compañía are titled as the Silver Cliff, D. A. V., Las Rosadas, Novedad and (Olympia of 2 denouncements) and embracing an area of about 300 pertenencias, equal to about 700 acres. These properties, especially the Silver Cliff and D. V. A., present the finest tunneling proposition in the whole field of Santa Eulalia. The great dikes of the proved bonanza zone and those of Nueva Santa Eulalia appear to junction on the D. V. A. and Silver Cliff claims and two natural caves are in evidence near the highest point of Cerro de Compañía on the Silver Cliff. (See notes above in special report on Fuente de Plata and Colorado.)

WM. ADAMS, E. M.

119 Calle Aldama, Chihuahua, Mexico.

Supplementary report on what we call the Broken Hill Gold & Silver Mining Co., of Mexico.

The properties embraced in this proposed company consist of titled denouncements called Adams Hills of 133 pertenencias

Overlooked	„	18	„
Demacias	„	6	„
and Holland	„	15	„
Total		172	„

To which should be added the Mascota of	16	„
Lucera	2	„
Lucera Anexas	22	„

Making a grand total of 212 „

The Central dike cuts through these inviting properties from end to end or for a distance of 700 meters heavily charged with spouts of iron and manganese ores carrying on surface small values in gold and silver.

These properties are also marked by large quartz porphyry dikes called Van's dike, Jones dike, Roosevelt fissure and Roosevelt dike, all of which assay from \$1.00 to \$2.00 gold values, and we have had as high as 65 oz. silver for a sample taken and assayed by Mr. Will Mitchell, General Superintendent of the American Smelting and Refining Co's mines of Santa Eulalia. The tunnel and shaft site and dikes as described in my general report on pages 9 and 10 are mostly on these properties and here is where Engineer W. B. Brooks prophesies we will develop a second "Little Johnny" like the one at Leadville, Colorado.

We desire to form one or more development companies on the 172 pertenencias and arrange a deal for the Mascota, Lucora, and Lucera Anexas.

Yours Truly,
WM. ADAMS, E. M.

**For prices, terms and conditions of sale of
any mines of the Nueva Santa Eulalia, Fresno
Ranch, or any mining property on which we make
special reports, address,**

**Wm. ADAMS,
Calle Aldama No 119, Chihuahua, Mex.**

Thanking the mine Presidents, Managers, Superintendents, and mining men generally of Santa Eulalia for the many courtesies extended me in allowing me access to the underground workings throughout the field, I will close this report.

Yours very truly,
WM. ADAMS, E. M.

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